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MARCH, 1947

THE N.Z.
POULTRY
WORLD



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Editorial

EGG SHORTAGE IN CONSUMER CENTRES

The egg supply position in the larger consuming centres today is in an extremely precarious position, and in some instances difficulty is being experienced in maintaining priority supplies.

Throughputs have dropped considerably in City Egg Floors and in consequence, every means is being sought to build up supplies from areas outside the main centres where consumers are obtaining a full ration.

The non-marketing areas where small parcels of eggs are available cannot be adequately serviced by Egg Floors as the cost of collecting, crating, and transporting would be out of all proportion to the gain in supplies.

An appeal is therefore being made to the larger producers to assist in overcoming main centre shortages; commercial poultry keepers who enjoy

the benefits of the Industry's organisation surely have some moral obligation in this respect. It is conceded that they have the right to market their own eggs; but if only a proportion of their production is put through organised marketing channels, they would be helping the deserving consumers to some extent, for in the aggregate these extra deliveries would considerably ease the priority problems.

It must be remembered that John Citizen is paying his share of the subsidy on poultry food and eggs, and is therefore entitled to a share of the total production.

Those fortunates who have motor cars can go out to the farms and buy more than their share of eggs, but very rarely are they the ones who need priorities. It is therefore a deplorable position that the law of the jungle is in

evidence, instead of the spirit of good-will and co-operation.

The poultry industry, apart from unavoidable feed shortages, is today receiving a reasonably fair deal, and a plea is therefore issued for producers to assist in contributing a quota of their output for distribution through organised channels.

Newspaper attacks blaming all and sundry for the egg shortages are becoming more frequent as eggs today have news value. Rarely is the blame placed on the actual source of the trouble and it will not be long before the whole Industry is subjected to criticism, and the organisation so patiently built up, brought into disrepute by the press, who no doubt feel justified in their attacks and will eventually look further afield to find a scapegoat upon which to place the blame for shortages.

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N.Z. POULTRY BOARD MEETING

During the Board meeting held at Wellington on the 5th, 6th and 7th of February, 1947, the Poultry Board Consultative Committee, comprised of the Presidents of the four Provincial Councils, were in attendance, thus allowing the Board to meet Stabilisation, Department of Agriculture, and Officers of the Internal Marketing Division.

The Consultative Committee handled the various remits forwarded to the Board by the Provincial Associations; the resulting recommendations were then placed before the Board for discussion.

The meeting was the final one of the old Board, which had been held in office since April, 1942, under the Emergency Regulations, which were repealed under the Statutes Amendment Bill, October, 1946.

The Board met the Department of Agriculture to discuss the Veterinary Bill with the view of ascertaining if it would be advisable to bring the poultry industry within its scope. An interview was arranged with officers of the Economic Stabilisation Commission to discuss the emergency price of Standard Mash in the North Island which, through the necessity of incorporating more expensive ingredients than originally contained in the formulae, had been advanced in some instances by approximately £2 per ton.

An application which had been made to the Building Controller for releases of roofing iron for brooder houses, etc., is under consideration and hopes are entertained for a favourable announce-

ment.

Election procedure for future Board elections was discussed by the joint committees, in which the four Presidents participated, as the four Provincial Associations have autonomous powers and can each decide their own methods; only informal discussion were held, no doubt Conference will take the matter further.

The egg price increase as it effected the price schedules contained in the Price Orders showed differentials between various centres which was discussed at length, but action deferred as the Marketing Committee when formed in accordance with the recommendations contained in the Post-War Egg Marketing Report would be the competent authority to deal with such a subject. It is expected that the Minister of Marketing will make an announcement concerning the Report during Conference.

MR. T. GILL'S RETIREMENT FROM THE BOARD.

The various members of the Board and the Consultative Committee spoke in appreciation of Mr. Gill's valuable service to the Board and the industry, and hoped his retirement would not mean his entire dis-association from industry affairs.

APPRECIATION.

I wish to extend my sincere thanks to all poultrykeepers who voted for me at the recent Poultry Board election. Although defeated, I shall continue to take a lively interest in poultry politics.

A. J. SEVERN.

THE FLIGHTY FOWL

How to Prevent it Flying

Flighty light breed pullets that will not stay in their own yard but insist upon flying over the fence not only become a nuisance, but may also cause a spread of disease, and, in cases where selective breeding is followed, may cause a crossing of strains of breeds.

A method of keeping them in suggested and tried out to advantage is to place a trip-wire about six inches above the netting. This is a single strand of fine wire, and any fowl alighting on it will naturally be unable to balance for a take-off for the other side of the fence. It is not claimed to be a 100 per cent. deterrent, as some fliers with enough take-off in the yard may altogether ignore an intervening fence, yet it does prevent any ambitious fowl from making a six-foot flight and a further take-off.

Incidentally, one comes across many pullets on farms with their wing feathers hacked, looking unsightly, and in the majority of cases off the lay with dry combs and suffering from colds and sticky noses. The answer to the question, "Why did you cut the wing that way?" is always the same, "I read how to do it."

Now, in the wing of the fowl there are two sections of feathers, the flight or primaries of ten feathers, which are in the outer or outside wing section which folds in under the other section, nearest the body, and which contain twelve long feathers. In between the two sections is a smaller feather, half the size of the others, and which denotes the break in the sections. This feather is the axial feather.

To prevent a fowl from flying it is only necessary to clip the ten feathers in the outer section of the wing, as these feathers are the main ones used in flying. As this section of the wing folds under the other sections, the clipping will not be noticed and does not spoil the appearance of the fowl. If any or all of the feathers—twelve—of the inner sections are cut, you immediately deprive the fowl of its natural protection to the lungs and kidneys, which Nature in her wisdom has given her. —"South African Poultry Magazine."

POULTRY SALES

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ANNUAL MEETING

The New Plymouth Registered Poultry Keepers' Association

The Annual Meeting of the New Plymouth Registered Poultrykeepers' Association was held in the Taranaki County Chambers on Thursday, January 23rd, 1947. The attendance was very fair, some members from outside covering quite a few miles to attend.

The Chairman (Mr. J. R. Miller) commented on the two major problems—shortages of food stuffs and electricity especially during the past hatching season.

The following officers were elected: President, Mr. C. Light; Vice President, Mr. B. R. Murray; Secretary, Mr. V. George; Executive Members, Mr. C. A. Ludeman and Mr. A. E. Stuart; Food Committee, Mr. J. R. Miller and Mr. B. King (remaining in office).

A vote of thanks was accorded Mr. J. R. Miller (retiring President), Mr. B. King (retiring Secretary), and Mr. J. K. Hanning, Honorary Auditor.

JOTTINGS.

By "Stickybeak."

Prior to the egg price increase, one, poultry-farmer informed me that unless the prices were increased soon the poultry industry would be in the same position as the "Wanganella," i.e., "on the rocks, or practically sunk," happily both have now circumvented this prophesy.

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The Board elections have provided the Board with a change of blood as far as producer members are concerned and voters will naturally be anxious to see what new plans will be hatched for the industry.

The Board election poll has proved to be somewhat of a greasy pole where there is no guarantee for sitters.

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It is time some of these gate-sellers were brought into line, as they are apparently trying to cop profits, ad lib. plus. An example was witnessed recently where a purchase had been made from a commercial poultrykeeper of a

mere 10 dozen eggs by one person. The price charged was heavy grade retail plus one halfpenny. The eggs were under-grade pullets', no larger than pigeons'.

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Not Mercenary.

The night following the announcement of the Dominion egg price increase I received a ring from a commercial poultryman, and thinking of the one subject of interest to the Industry, I said, "What do you think of the news?" he answered, "What! Have they floated the 'Wanganella' off?"

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HOUSING PULLETS.

Housing pullets in laying quarters will commence shortly and the sheds should be thoroughly cleaned out, brushed down and disinfected first. Effect all repairs necessary, especially to flooring. Provide deep litter for the newcomers, as this helps to overcome any setback which changes often bring about—during the transfer. Move pullets, if possible, in the cool of the day and keep them housed for at least one day before allowing yard freedom.



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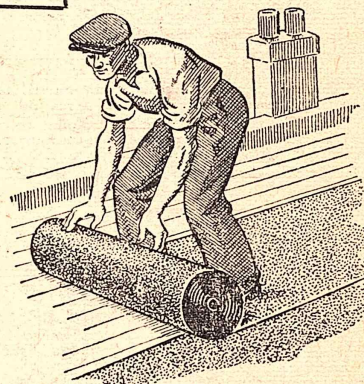
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By studying the habits of birds with big laying results to their credit it has been found that the average hen takes far too long over the moult. Four to six weeks should be regarded as ample time, and it is the up-to-date poultry expert's policy to get his flock over the moult within this period. The result is a substantial increase in the number of eggs laid per bird per year and a quick profit at a time when eggs are definitely scarce.

HOW TO SHORTEN THE MOULT: As every poultry farmer knows full well, the reason why most birds go off laying during the moult is because much of the nutriment from their food is being used to grow new feathers. To speed up the moult, therefore, a richer diet if possible is advisable and then, A RELIABLE TONIC TO ASSIST REFEATHERING AND TO TONE UP THE SYSTEM GENERALLY. Such a tonic, used by leading poultry keepers, both here and abroad, is KARSWOOD POULTRY SPICE (containing ground insects, the birds' natural stimulant, and also blood enrichers). In this way, anything from 6 to 10 weeks' inactivity may be saved.

LEADING POULTRY EXPERT'S OPINION: Here is a letter from Mr. Cyril Grange, one of England's best-known Poultry Judges, Breeder, Lecturer and Expert, whose trap-nested birds lay up to as many as 345 large eggs per bird per year. He finds that, thanks to Karswood, his birds moult, feather and lay again in rapid time. Just read what he has to say, and remember the identical same Karswood in this Dominion costs only 1d. a day to feed to every ten head of YOUR flock:—

It is most beneficial to give Karswood Poultry Spice to fowls during moult. It tones up the system, it encourages the growth of new feathers, and its tonic effect enables the fowl to get through the moult in a much shorter space of time.

Looking through my lists I do not find ANY that have a complete rest (with no eggs) for longer than 28 days. I have birds which lay (by trap-nested records) up to 345 large eggs in one year, so there is not much time for moulting here, and Karswood Spice gives them the power to moult and feather and lay again in rapid time.

If birds seem to "hang in the moult" I can always recommend the daily dose of Karswood Spice as an excellent pick-me-up and tonic for rapid conditioning. Supposing it saves six weeks on every bird (which it easily does), then on a backyard pen of, say, 25 you will be better off by 150 weeks, i.e., nearly three years of eggs will be gained. This is worth considering, surely! Not only that, but the birds will be coming on to lay when eggs are dearest.

CYRIL GRANGE.

E. GRIFFITHS HUGHES LTD., Adelphi, Salford, Manchester, England.

KARSWOOD

POULTRY SPICE

WORK BETWEEN SEASONS

G.H.A.

We are now between the seasons—that is, the clearing-up of the breeding time and before the show season comes along. But there is much to be done if the work is to be kept in hand. No breeder should keep on stock which is not useful, but those birds which are not wanted for adult cocks and all deformed ones should be cleared off without delay. Keep the stock within bounds—that is, only what you can easily control.

All useless cockerels should be killed off to make room for the pullets, which should be graded out according to age and quality. Unfortunately, if you have only one run, this will be difficult, but there is the idea if anyone can carry it out, and the stock will look all the better if you have any visitors around. It is useless to keep more birds than you can manage. To crowd a yard or run and leave a house dirty for a few days soon brings on disease, and then trouble begins.

If the fowls are a hobby with you and your only time is morning and night, with Saturday afternoon thrown in, it means that someone must feed while you are away all day, and this is quite as necessary when raining hard as if fine, so while rearing all you can, keep the work within limits, otherwise your hobby will become too much of a labour, and then you may give it up. But if you give your whole time to the business, then you should be fully occupied, and with the long days find something to do right from early morn till dark.

Give all young stock plenty of fresh air, and, if not afraid of vermin, leave the house door open. If there are cats about, use a wire-fronted house, and then close the door, for the more fresh air these birds get the harder they will become. Foul houses are the greatest abomination of the poultry yard, and it is not much use keeping the floor clean if the air is not pure. To remove the droppings regularly will be a step in the right direction, but see that the ventilators will keep the air changed. Young stock suffer more quickly from foul air, therefore see that they have room and a

healthy atmosphere. Although the young broods need attention, the older stock must not be neglected. These are what you will probably need for next season's pens, thus they should be fed and cared for as if in the pen now. Many will be moulting, and all the cocks will be in small houses, which if provided with a grass run will be an improvement.

Feed only once a day until the old feathers have dropped, and let it be some hard corn; but when the new ones begin to grow the diet should be more liberal, and given gradually, and not a big feed all at once. The hens can be shut up together, because they will not fight to hurt one another. Their one feed of corn is best given at mid-day, and if a good covering of chaff or short straw is put on the floor, and the grain thrown in this, the birds will get endless amusement in scratching for it. By this means they can be kept busy, thus reducing internal fat and provide something to do all day. Green food must be supplied a little each day. It is a good plan to give a mild dose of Epsom salts regularly once a week all round, including the young stock as well. This will keep the blood cool and the system in good working order. When the new feathers begin to grow on the old birds, give soft food once a day, and give only a little to start with. This may be increased later, and should consist of food with a fair percentage of oil. A long period of drought is not good for any stock. With fowls the feather becomes dry and the oil in the quill dries up, so that unless the food supplies the deficiency when needed, there must be less development and a lack of bloom when the bird is fully feathered.

During the heat both chickens and old birds will sometimes seem slow in feathering, but the salts will help this, through the better regulation of the system, and on other mornings, when warm and dry, give the soft food a dusting with flowers of sulphur, only about a teaspoonful to every six birds. While acting on the blood this will also loosen the skin and ease the growth of the feather,

which will make them come even, and make the colour better and more level.

The Young Feathers.

Anyone can easily understand that if the feathers all grow together the colour is more likely to be even than if grown in patches. Take a buff fowl. Should the hen moult one part and be a long time dropping the other feathers, those which have come through are subjected to light and air longer than the others, hence the change in shade; but while this is seen more easily in a buff bird, it is there in some measure in a brown bird, though, perhaps, not so easily discerned. There is a great art in making a bird moult almost any time, although this is partly possible with nature to assist.

Look Around the Coops.

The careful poultrykeeper will always have an idea as to his appliances, and just now he should look around coops and brooders to see how they are before storing for the winter. What repairs are necessary should be done at once, and the whole cleaned. If the outside is painted, give this at least one coat and then do the inside with limewash if wanted to keep a light colour. See that the brooders are clean and all hinges in proper working order and, if ready for use, then store away in the dry until wanted. With long days and some dry weather these little jobs can be attended to much easier than next July or August when you want to use them, and the weather will be wet for days. There may be some difficulty in finding room for all chicken coops, but it will pay to erect a special building, if only a lean-to, so long as it is rain-proof, because care of this sort means a longer life to the coop and rearer, which will more than pay for erecting the shed.

Selecting the Cockerels.

It should now be possible to determine which cockerels are likely to be worth keeping for stock purposes next season, assuming that one is able to find buyers for them. As a rule, however, it is

somewhat risky for a little known breeder to keep a lot of cockerels in the hope of selling them for breeding since the demand for such birds is necessarily limited.

However, when it comes to making a selection of the likeliest breeders the safe rule is to pick out the most forward and the most vigorous birds of the earlier hatches, and on no account should the smaller and obviously inferior birds be saved for that purpose. Take the opportunity now of clearing out any old stock which has finished laying. Unless a hen is a show specimen and worth keeping on for this purpose, she should not be held beyond two years, for all her usefulness will be over by that time. Of course it will be necessary to secure a good cockerel to head the pen.

A CRITICAL PERIOD OF THE YEAR.

AT the present time, when egg production is at its height, a great deal of care should be taken in the handling of laying eggs. Where labour is employed especially, there is apt to be some rough handling. Many are the birds caught and thrown into another shed or yard, or similar harsh treatment. Such action is likely to cause blood spots in eggs, egg yolks falling into the abdomen, as well as ruptured oviducts. In many cases birds are so injured internally that they are put out of production for long periods, and some may even die. It would be well for all poultry owners to explain to their assistants the danger and absolute need to treat birds gently. The fact can be very simply explained, and the process of egg formation and passage illustrated. A laying hen needs just the same careful handling as any animal carrying its young.

MODERN DEVELOPMENT.

The culture of the domestic fowl has always had a great fascination for mankind, and this is not to be wondered at, for of all domestic stock none respond so readily to proper treatment or produce such quick results and profits.

At one time, however, the keepers of poultry were more concerned about the beauty of their birds than the actual returns in eggs,

and it has not been until quite lately that the purely utility side of poultry keeping has come to the front. At present, so great is the demand for eggs and poultry meat, that the number of commercial poultry plants has greatly increased. Present day poultry farmers are greatly indebted to specialist breeders for the mass of authentic information now available; where but a few years ago the average breeder of poultry carried on his operations more or less blindly, there is now such an array of proven facts in relation to the production of eggs that almost anyone with a desire to succeed can make a success of poultry farming. In practice, however, there are numerous problems which crop up, and this Journal is published monthly with a view to assisting the poultryman in overcoming these obstacles and making a success of his undertaking.

NESTING SYSTEM WRONG.

The type of nesting section in which fowls cannot receive warning of the approach of an attendant is one of the worst possible features on any commercial farm. These sections have been arranged with only one point in

view—time saved in the collection of eggs. The danger to the eggs and the hens have never been considered. To be quite safe nests should be so arranged as to ensure maximum coolness in summer, and to allow the hen to see the attendant approaching. If she is extra timid, it allows her to make her own escape in a leisurely fashion, and with less cracked eggs. If there is no alternative to the type of nests objected to, try leaving the lid raised an inch or two, propping it up with a small piece of wood, or having an open slot in the next wall to give the birds an opportunity of detecting your approach. In all cases raise the lid very, very gently.

TO ELIMINATE SMALL EGGS.

Any poultry breeder wishing to eliminate the layers of small eggs from his flock should weigh the first 10 eggs from each pullet. Beltsville (U.S.A.) Experiment Farm found that the average weight of the first 10 eggs laid was highly correlated with the average weight of the eggs laid during the rest of the year. In order that eggs should average 2ozs. each, a pullet's first 10 eggs should average 1½ozs.; those under this average laid eggs under the 2oz. standard.

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The Technique Of Inbreeding

BASIC STOCK A PROBLEM.

In view of a remit being placed before Conference in respect to establishing a progeny testing unit, the following interesting and practical study which was the subject of an address by Mr. H. B. Wallace, of Johnston, Iowa, delivered at a poultry convention in U.S.A., should give some idea of the work involved in such an undertaking.

ONE problem in an inbreeding programme is the decision as to where to obtain the basic stock for inbreeding. I have had experience with inbreeding stock from around two dozen breeders, three-fourths of which was thrown out within two years after it was obtained. Most of this stock would have been reasonably satisfactory for "pure-breeding" purposes, but it was much too heterogeneous to stand up under intense inbreeding. What stock to use for inbreeding is a trial and error proposition, principally error.

It is an academic question as to whether the inbreeder should proceed rapidly or slowly in purifying his lines because we are all faced with the desirability of getting any project we start on a paying basis just as soon as possible. Since this is a 10-year project the shortest way, there is a little place for matings less close than half brother-sister or three-quarters brother-sister.

You may wonder just when a line should be called an inbred line. The answer, of course, depends upon how much uniformity is desired in the commercial cross of the inbreds. In the production of hybrid corn, it is unusual to use inbreds which carry less than a 98 per cent. coefficient of inbreeding. It is obvious that poultry breeders will have to be content with a much lower figure than that, because it would take around 20 years of full brother-sister mating to reach that same point. My guess is that if lines are used commercially which carry much under a 50 per cent. coefficient of inbreeding, or under 3 generations of

brother-sister mating, the breeder will find so much change in his inbreds with further inbreeding that his commercial product will be quite different a couple of years later. Even with 3 or 4 generations of inbreeding, there is considerable change with additional inbreeding. But there has to be a practical levelling off point some time in the rate of inbreeding so that commercial numbers of the inbreds may be built up.

DEVELOPING INBRED LINES.

There are really two features involved in developing commercially usable inbred lines: First the breeder must develop a satisfactory coefficient of inbreeding in his inbred lines, and then he must have a large enough number of each commercial inbred so that he can use these lines as parents on a volume basis. This means that each inbred must be a co-ordinated unit so that when any male of the inbred is mated with any female of the same inbred, the coefficient of inbreeding must be maintained at whatever level the breeder feels is desirable to obtain suitable uniformity.

Inbreeding is an unpleasant job at best because there are so many problems involved in developing new inbreds, but developing new inbreds is in many ways an easier job than increasing number of already developed inbreds for commercial use. Some inbreds could never be used commercially because of their inability to reproduce themselves in large enough numbers. Others could be used only some years because of their erratic performance under unfavourable environmental conditions which are bound to arise some years. For instance, we had a highly inbred line two years ago which suffered a mortality of 55 out of 60 birds in a six weeks period of time from a bacterial cold. That line was therefore lost completely after six years of inbreeding.

Without knowing the exact figure, I think I can safely estimate that what results are obtained from a flock of chickens are determined at least 80 per cent. by environment and less than 20 per cent. by heredity. Thus, the breed-

er is always faced with the principal job of how to produce a chicken which is best able to combat a variety of unfavourable environments.

ENVIRONMENT IMPORTANT.

No breeder can stand to have more than a small percentage of possible troubles on his home breeding farm. This is true of standard-bred chickens, but doubly true of inbred chickens because of the much lower resistance of inbred chickens to unfavourable environment. While there is considerable room for argument on this point, I am convinced on the other hand that no breeder can afford to have a disease-free farm, or even a relatively disease-free farm. However, few breeders would have the nerve to deliberately introduce some disease which they did not already have but which is common on local farms.

We were never faced with a decision on this matter because we have been plagued with a never-ending series of disease problems ever since 1936. The interesting thing about all of the disease troubles is the varying resistance we find in the various inbred lines.

In addition, we have the problems of widely variable temperatures, also irregularities of management such as moving birds when in full production and changing feed abruptly. Since inbreds tend to be substantially weaker than standard-bred stock, the effect of environment is much greater on inbreds than on standard breeds, and hence the inbreeder has an even tougher job than it might seem at first glance in determining the actual breeding worth of his inbred stock. It is the interaction of this multitude of environmental problems with the many important quantitative characters listed earlier, which makes the job difficult. There is no time to go into the details of these various interactions, but they make a very interesting study.

DATE OF HATCH.

One additional factor which is neither a disease nor an environmental problem is the date of hatch as it is related to disease and quantitative characters. Since

large families from each mating are very important in the higher stages of inbreeding, the offspring from a given mating may vary as much as 5 or 6 months in age from the oldest to the youngest. Evaluating results from these various aged birds becomes quite a problem when added to the many other problems.

Each of the inbreds is worse than worthless if regarded as an entity in itself. An inbred has value only if it has been proven in a cross in combination with one or more other inbreds. This testing programme is equally as important as the inbreeding programme. It is a tremendous job, that of testing all possible combinations of inbreds. The inbreeder is continually using what seem to be promising inbreds one year, only to find them a thing of the past the following year.

At best, this testing of different crosses of inbreds is only apt to be about 50 per cent. efficient. Of the 50 per cent. which might be produced commercially, usually about half of the crosses are apt to be no better than good standard-bred birds. This is not discouraging as long as there are a few outstanding crosses on test.

Assuming that one or two outstanding crosses showed up, two important hurdles still stand in the way of commercial production. First, the results under experimental testing conditions should be backed up with field tests by a variety of farmers to get their reaction. Second, if the inbreds involved are still in existence, they must be strong enough to stand multiplication. This is especially a problem on the female side of a commercial cross, because it takes ten times as many female parent stock chicks from which to produce the commercial cross, than male chicks, thus, somewhat weaker inbreds can be tolerated on the male side.

ELIMINATE WEAKNESSES.

While I suggested earlier that all possible combinations of inbreds might be tried in testing possible commercial combinations, actually there are some combinations which would not be feasible. There are a few weaknesses such as small egg weight, slow maturity and slow feathering, among others, which have to be taken into careful consideration in making up feasible

crosses. A large number of weaknesses can be tolerated when they are properly combined, but there are some weaknesses which should not be tolerated in any inbred.

The breeder who is trying to locate an outstanding cross of inbreds is practically shooting in the dark. It is impossible to predict which combinations are apt to "click." Making the crosses and testing them is the only way to find out. The trouble with this phase of the breeding programme is that the testing becomes so voluminous that it becomes very expensive. Frequently comparative results are difficult to evaluate because of different environmental conditions involved where the tests are run. Also there is the problem of testing large enough numbers of each experimental cross so that results are significant. The inbreeder is frequently faced with the decision as to whether to throw an inbred line away based on limited testing which yielded unsatisfactory results, or whether to expand testing facilities and then test the inbred in more combinations.

Testing inbred lines of chickens is similar to testing inbred lines of corn in that each cross is specific. That is, it is impossible to predict the results of any cross without making it. Quite possibly unusually good combinations are missed due to inadequate facilities for complete testing.

In spite of the many difficulties encountered in setting up and developing a large inbreeding programme, the job can be done. The job takes several hundred thousand dollars of subsidisation, a large breeding plant, and at least a nucleus of trained personnel. In most phases of the poultry business, luck is of primary importance, and this phase is no exception. Luck is that indefinable difference between success and failure when two individuals start out with the same apparent resources.

WHAT WILL INBRED CROSSES DO?

What can be expected from crosses of inbred lines of chickens as compared to the chickens farmers are used to buying from their community hatcherymen? This is an expensive breeding job and, like hybrid corn, means a substantially higher-priced product to the farmer. In chickens this

will mean approximately twice as high a chick price as good standard-bred chicks.

The average farmer is not going to pay this price unless he can see the advantage easily. Not one farmer in a hundred will divide his chicken house and run an accurate test, so the chicken has to be good enough to convince him without a test. To do this the hybrid cross of inbred lines must lay at least 3 dozen more eggs per bird on a hen-housed basis. It must do this under a variety of conditions because a good hatchery expects at least 80 per cent. re-orders. A goal of 3 to 4 dozen more eggs per bird is not out-of-line, at least under midwestern conditions.

I cannot project results from this method of breeding to areas outside the Midwest except in theory. The theory should hold for any area, but it is entirely possible that the bird developed for the Midwest would not suit conditions in California, New England, or New Mexico.

Production advantage alone is obviously not enough, in fact, livability from day-old through the laying year rates about equal to production in importance to most farmers. There are many other factors of considerable secondary importance to farmers. For the past six years the hybrid corn industry has been much more concerned with these secondary factors than with the principle factor of the yield. The job of developing a superior commercial product by the crossing of inbred lines is a never-ending one. First things must come first, refinements must come second.

The problem of developing a good commercial hybrid corn from scratch would take at least 15 years from the time the inbreeding programme started. In chickens the job can be figured at closer to 25 years. The Hy-Line Poultry Farms have been engaged in inbreeding chickens for 12 years and in limited commercial production for five years. Other breeders will follow our pioneering in this field, but we, along with those who follow us in this work, have a long way to go to develop a really superior chicken. We are only just peeping over the horizon of the possibilities inherent in this method of developing a better chicken.

—"Canadian Poultry Review."

IDEAL INCUBATOR HOUSE

STRESSING the importance of the incubator room in successful hatching methods, Mr. J. M. Angell, a pioneer of the accredited hatcheries scheme, described the steps he had taken when moving to his present premises in 1937 to build an incubator house that was as near perfect as possible.

First of all he sought the advice of the University of Bristol, whose two Advisory Officers gave him most valuable help and advice. They went to a great deal of trouble in collating all the valuable information available.

"Eventually," he continued, "it was decided that a suitable room for the incubation of 70,000 eggs should have an air capacity of 15,000 cubic feet, and that it would be necessary to change this air eight times hourly. It would seem, therefore, that about 20 cubic feet of air with the rate which I have already mentioned is required for every 100 eggs to be incubated.

"The requisite air changes are maintained by the use of an extractor cowl ventilating system.

"A room temperature of 70 deg. F. is required to get the best results and provision for maintaining such a temperature should be made to meet individual conditions. Wide variations in room temperature will create difficulties in the regulation of the machine and operating in a cold room greatly increases the actual cost of heating the machine. There is, of course, also the danger of the eggs being damaged or the chicks chilled if the room temperature is too low.

"In my case I have a thermostatically controlled hot water radiator system, heated by an automatic gas boiler. This is not a luxury; it is a necessity, so far as I am concerned. Its employment increased hatchability by 5 per cent., which on my pre-war settings, represented an increase of 25,000 chicks annually.

After detailing his methods of operating the incubators he referred to the selection of hatching eggs. "Most good hatcherymen realise," he said, "the importance of using only eggs from strong, disease free, tested flocks, and will

not knowingly use eggs which have not the best chances of producing strong, vigorous chicks.

"The wise hatcheryman endeavours to create a complete understanding with his supporting breeders to prevent deterioration of hatching egg quality due to neglect on the farm."

DREADED DISEASE."

"The disease hatcherymen most dread is B.W.D. The only sure way to avoid producing chicks which are infected with this disease is to use eggs from 100 per cent. tested breeding stock.

"As a safeguard the disinfection of machines should take place weekly by the use of formaldehyde gas, using 1½ ozs. of potassium (40 per cent. formaldehyde), and 1 oz. of potassium permanganate for each 100 cubic feet of air space. This should be carried out just before the hatch is completed. After the completion of the hatch all fluff and dust should be removed.

"The best and most efficient method is to use a vacuum cleaner. After each hatch the hatching

trays should be scrubbed in water to which the correct proportion of a reliable disinfectant has been added, or a 4 per cent. solution of common washing soda, i.e., a double handful to 2½ gallons of hot water. The floors of the hatchery itself should be sprayed with disinfectant weekly."

Fall in Wheat Prices Predicted

A recent press statement received from Canberra where Australian State Agriculture Ministers were attending an agricultural conference, gives an optimistic prediction that wheat prices will fall sharply during the next two years, owing to the likelihood of production catching up to the pre-war figure of 1,580,000,000 bushels yearly, exclusive of Russia.

The Commonwealth Stabilisation plan to ensure economic prices to wheat growers in the event of prices receding, has been rejected by South Australian growers who are loath to accept a limitation of the present high price levels.

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Salt Poisoning In Poultry

J. D. BAXLAND, M.R.C.V.S., Outlines Some Recent Experiments.

SALT poisoning is frequently suspected by poultry-farmers, particularly domestic poultry keepers, as being the cause of sudden mortality amongst their birds, although most of the available evidence shows that salt is not markedly poisonous for poultry. A series of experiments recently carried out at Weybridge supports this contention.

Individual fowls died after receiving a single dose of salt directly into their crops, when the dose was approximately 30 grains per lb. body weight, or about one desertspoonful to one table-spoonful to a bird weighing 5-6 lbs.; but when the same dose was mixed into the food of other birds it only caused watery diarrhoea.

Sixteen mature birds were then fed for a month on mashes containing up to 20 per cent. salt; loss of condition was marked owing to semi-starvation, because of the extreme unpalatability of the mashes, but no deaths occurred that could be attributed to salt poisoning; again, however, throughout the experimental period, the birds were excessively thirsty and their droppings were almost entirely liquid.

Single feeds of mash containing up to 30 per cent. salt were given to four groups of mature fowls, totalling 56 birds, kept under conditions as far as possible similar to those existing on most farms; only four birds died in all and apart from the usual excessive thirst and diarrhoea lasting 24 hours after eating the salted mash, the remainder showed no evidence of ill-health; recovery was complete and rapid after the birds had been allowed free access to water.

GROWERS USED.

In another experiment, 27 two-three month old growers were fed for fourteen days on mashes containing up to 15 per cent. salt; only 5 birds died (three of the five surviving for 13 days) and the remainder recovered completely after showing the usual symptoms during the experimental stage.

From these experiments it would seem that mashes containing a concentration of salt high enough

to prove harmful would produce symptoms so marked that the error would be noticed before serious losses occurred. Recovery on normal mash and with free access to water would in that case be rapid.

In the case of baby chicks, however, the picture was rather different. When salt was fed in the mash in a concentration of 10 per cent., a 50 per cent. mortality occurred within three days, and after two weeks, there had been an 80 per cent. mortality. With a 5 per cent. concentration there was a 30 per cent. mortality in three days, but it is interesting to note that the survivors in this group became accustomed to the salt mash and grew normally over a period of five weeks in spite of their excessive thirst and continued diarrhoea.

When salt in solution, even as normal saline 0.9 per cent. (the same concentration as in normal blood) was given instead of drinking water, a 100 per cent. mortality occurred in 5 days.

The experiment with baby chicks showed that a concentration of even 5 per cent. salt in the mash might cause some losses, but again, the symptoms of poisoning would be so obvious that serious mortality under the care of an experienced poultryman could be prevented. Small quantities of salt in the drinking water, however, might cause more serious losses in a much shorter time.

(Abstract from article published in "The Veterinary Journal.")

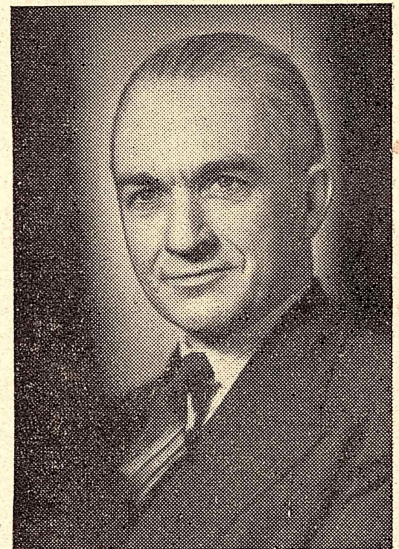
CLEAN UP BROODING PLANT.

In too many instances, due perhaps to pressure of work or other causes, the brooding plant is left for weeks, sometimes for months, in the condition it was when the last chicks were removed from it. Such neglect is likely to store up trouble for next rearing season. The floor of the building and 12 or 18 inches of the walls, also the floors of any brooders which have them, should be well scrubbed with hot, soapy water containing a suitable disinfectant; this scrubbing should be extended to the water vessels and feed troughs.

Retirement from N.Z. Poultry Board

Mr. T. S. Gill, who did not seek re-election to the Poultry Board, has done a considerable job in assisting the poultry industry, and although suffering from indifferent health for some time, has not spared himself, as he was one of the most regular in attendance at Board meetings.

The Chairman and Board members, during the February meeting, spoke eulogistically of Mr. Gill's



Mr. T. S. GILL

past services. In his capacity as Board member and Chairman, he had given unstintingly of his time and energies during a long and arduous term of office. Mr. Gill's knowledge of marketing and practical poultry-farming had been a decided asset to the Board and it was hoped that his knowledge would not be lost to the industry and a wish expressed that some place, probably in the new marketing structure, would be available for him.

Mr. Gill, in replying, said that he would always endeavour to help the industry with any knowledge and advice within his powers and would certainly keep in close touch with industry affairs.

Temperature Affects Egg Size And Shell Texture

Investigations at the Kansas Station, U.S.A., have established that egg size is very sensitive to temperatures and that apparently the dividing line is about 70 degrees F. Where temperatures exceeded 70 degrees for a period of a few days, there was usually a decline in egg size which improved again at the end of the laying year when temperatures went below 70 degrees F. This proves that the reduction in size was not due to the fact that the birds had been through a long laying year and were fatigued.

It used to be thought that thin egg shells were due to lack of vitamin D. It may be that long periods of cloudy weather, when the birds do not receive direct sunlight, is occasionally responsible for thin shelled eggs, but nowadays nearly all rations are supplemented with fortified fish oil or some other source of vitamin D. Furthermore, the feeding of extra vitamin D frequently has no effect on shell quality.

It has been demonstrated that decreasing the amount of vitamin D supplement, below the required level, will cause a far more abrupt and serious decline in the number of eggs produced rather than in any rapid deterioration in shell quality.

General experience has been that thin or abnormally shaped egg shells are most often due to the hens being too fat.

Thin shelled eggs produced by hens after a heavy fall and winter production may be due largely to hereditary deficiencies comparable to those which prevent cows from utilizing sufficient calcium to maintain milk production indefinitely.

This fact is pointed out by E. R. Halbrook, Research Assistant in Poultry Husbandry at the University of California in a report entitled "What Causes Thin Shelled Eggs."

"From a dietary point of view the formation of adequate shells depends on the amount of calcium given in the form of bone, limestone or oyster shell, in the hen's ration; and on the supply of vitamin D in the form of sardine oil, cod liver oil or other fish oil.

The shell of the egg is formed of minute flaky pieces of lime,

which in appearance and consistency first resemble damp parchment. It is gradually hardened and shaped by process of moulding until the egg is complete and ready for laying. The process takes place in the lower portion of the oviduct, where the egg is retained for some eight hours or so.—"Canadian Poultry Review."

EUROPE EXPORTS FOOD

The exporting of eggs and poultry from Europe's devastated areas to England gives cause for wonderment. Poland, Yugoslavia and Hungary, which were understood to have been ravaged by the Germans, are still capable of exporting food; for instance Poland is sending eggs to Britain, and Yugoslavia and Hungary arranged to export 500 tons of turkeys for the Xmas market, also several hundred tons of chicken.

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A TRAP-NESTING ROUTINE

(Described by H. Leslie Blackwell.)

TRAP-NESTING rounds should be done at regular times by a responsible worker. The hours should be set to suit the prevailing conditions, i.e., rate of laying and time of year.

It is essential to have an adequate number of nests per bird. One nest for every three or four birds is a good general rule, and if a sufficient number of rounds are arranged it will allow for the hens' preference for certain nests.

To facilitate accuracy and speed of recording the nests should be placed in a well-lighted part of the house at a convenient height for bird and attendant.

It should be remembered that the bird may have to stay in the confined space for a length of time (anything up to 2½ hours), so the nests should not be erected where the hot summer sun shines directly on them.

Light Houses.

Trap-nesting houses should be light and airy, but where a large expanse of glass is fitted the windows should be made to open.

My own nest-boxes are placed cross-wise to face the sides of the

house. This method is not so conducive to speed in a large house as one long continuous row, but it is much more comfortable for the stock on hot summer days.

The alighting perches are hinged and can be hooked back to prevent the birds roosting in the nests. The perches are fastened as the attendant traps during the last round of the day, and let down at shutting up time to allow the early layers to use them the next morning.

Hay is best for littering the nests, and when paper is not needed for salvage, thick journals can be used as floor pads. Straw nest mats, although not so good, will help during the present emergency. The pads will prevent many cracked and broken eggs if the birds scratch the hay from the middle of the floor.

If the nests become infested with fleas during the summer the old litter should be burnt. The floors and corners should be scraped, and the compartments sprayed with a strong disinfectant. Creosote should not be used as it takes too long to dry, and may contaminate the eggs.

Efficiency is increased if a suit-

able make of trap-nest front is made a standard fitting throughout the farm. Time and labour will be saved if it is possible to set the traps with one hand. They should be fitted on lift-off hinges so that the front can be opened wide to allow easy handling of the bird.

Layers should be handled gently and in a set way; they then know what to expect and will, if a docile intelligent breed is kept, co-operate.

Open the trap-front with the left hand, then lightly place it on the bird's right wing so that the hand is ready to slide down on to the bird's thigh. In this way the right wing is held in the palm and the fingers grip the thigh. If the egg is in front of the nest it should be collected with the right hand.

The attendant should then gently lift and "roll" the bird over on to his left knee. It may be found necessary to steady some birds with the right hand until the bird is in position on the knee. The right fingers are then free to turn the ring number into view for identification. Mud can be scraped off with the right thumb nail, as this hand is free except for the pencil.

After identification the hen is lightly dropped and the number is written on the broad end of the egg. After placing the egg in the storage nest or box, both hands are again free, so that while the trap is re-set with the left hand, the right one can open the next trap-front, and so on.

"Persuasion."

Some birds may not wish to leave the nest, and so one should feel for the egg, and if the bird has laid, remove the egg and gently "roll" the bird off the nest so that her legs do not drag out the litter. It may be necessary to use both hands for this.

Hold the wings steady with the palms and grip the thighs with the fingers. With both methods of removing the bird the rings should be placed upside down on the right leg. This enables the worker to identify the number easily.—"Modern Poultrykeeping."

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Best Use Should Be Made Of First Class Males

IT is said that the cockerel is fifty per cent. of the breeding pen. That is an understatement. The influence of the male bird is far greater than this figure would indicate.

The success of the breeding programme depends very largely on the sires, because they may raise or lower the standard of the chicks every hen produces.

That is an obvious and elementary fact of which all breeders are aware. But although it is both obvious and elementary it would seem that the knowledge is not applied with the thoroughness its importance warrants.

Another breeding season is approaching. How many of the male birds about to be used are members of progeny tested families? How many of these birds are of proved breeding value?

In the absence of statistics, observation leads to the belief that the number is very small; in other words, the great majority of our breeding pens are headed by sires of unknown worth, which may transmit one or more of those characters the breeder has been trying to eradicate.

Since the influence of the sire is so great it seems remarkable that more breeders have not used a greater proportion of tested cocks than has been customary. much time and labour is occupied in trap nesting pullets and to a lesser extent hens. Pullet breeding has been condemned because it means breeding from birds that have not proved their ability to live and lay.

All the familiar facts and opinions are emphasised to show that pullet breeding is fundamentally wrong, yet many people who so strongly condemn it do not hesitate to breed from cockerels that, like the pullet, have not proved their ability to live, far less proved their ability to transmit the factors for high fecundity and viability.

Breed type and colour count in these days. We cannot afford to ignore them, but mere possession of these characters is no measure

of ability to transmit those economic qualities required in commercial stock.

Breeding from selected cockerels of known family history constitutes sound practice; it is equally sound practice to breed from pullets of similar quality. But in each case breeding in the first season should be regarded as a test mating, and selection for the main breeding programme should be based on the information thus obtained.

Far too many cockerels are marketed at the end of their first breeding season, irrespective of their performance and the quality of the progeny they produce. This procedure so commonly followed is not in the best interest of the industry.

Records of pedigree breeders show that the breeding value of individual sires, even of full brothers, differs enormously, that the average egg production of the daughters of the same dam by one sire may be appreciably higher than that of the daughters by another. If, therefore, the superior sires were retained for further service the cumulative effect of this policy would soon express itself in higher flock averages.

And the blood of a bird of outstanding value should be as widely spread as possible. First-class sires are not so numerous that a breeder can afford to limit the breeding pens to ten or twelve birds. A bird fit for breeding will give high fertility with many more mates.

—"Modern Poultrykeeping."

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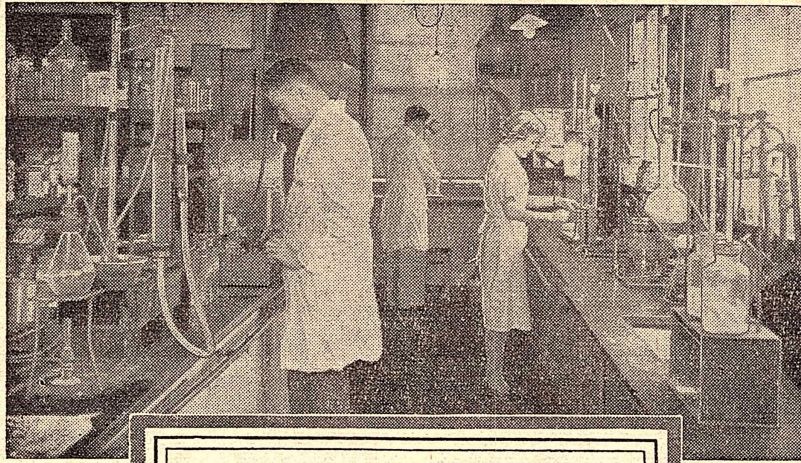
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ANALYSIS OF COST OF EGG PRODUCTION

Made on behalf of the New Zealand Poultry Board by Messrs. H. B. Low, Farm Economist, Massey Agricultural College, and I. W. Weston, Farm Economist, Canterbury Agricultural College.

(Concluded from last issue.)

APPENDIX No. 2.

EXPLANATION OF EACH ITEM AND COMPARISON WITH DATA.

(Prepared by Mr. W. Paton, Statistician, Department of Agriculture.)

(O) Details of Capital Required for 1,000 Laying Bird Farms.

Poultry Buildings :

5 Brooder Houses 12ft. x 16ft. at 4/6 per sq. ft.	£216
Incubator House 12ft. x 18ft. at 7/- per sq. ft.	76
Feed Shed and Concrete Floor 20ft. x 20ft. at 6.3 per sq. ft.	125
Laying Shed 4,000 sq. ft. at 4/6 per sq. ft.	900
8 Arks	88
Piping and Electricity	120

1,525

of which 2/3rds for annual average value = £1,000

Plant :

Incubator	£100
5 Brooders	50
Hoppers	10
Water Supply	15
Netting	45
Green Feed Cutter	35
Feed Mixer	50
Motor	10
Gravelly Motor	130
Tools	60

£500 taking 2/3rds for
annual average
value

330

Land 5 acres	300
Stock 600 Pullets at 12/-	£360
400 hens at 5/-	100
20 roosters at 10/-	10

470

470

£2,795

£2,100

Capital Summary :

Capital Value.	Annual Average Value.	Maintenance and Repairs.	Depreciation.
£	£	%	%
Land 300	300	—	—
Buildings 1,525	1,000	1 15 5 0	3 45 15 0
Plant 500	330	4 20 0 0	8½ 41 13 4
Stock 470	470	—	—
	£2,100	£35 5 0	£87 8 4

Interest is allowed on average annual value only at 4½% £94/10/-.

No provision for interest on working capital is made. Maintenance, repairs and depreciation are based on new values. Poultry buildings have in fact less than 33 years life and many items of plant less than a 12 year life. It would be noted that the items for maintenance and repairs given by Paton refer not only to a year of lower costs but to a year when actual spending on these items was limited by labour and material shortages of the emergency war period. It has been therefore deemed essential to make an estimate of reasonable annual charges over a number of years.

The number of dozen eggs is taken on the basis of Paton's survey at 10.8 dozen sold, per bird at the beginning of the year. A total of

PALATABILITY OF FEEDS.

Fowls may acquire a liking for any sound feed, and this liking, palatability or tastiness, is of far more importance in feeding than most of us realise. For instance: fowls like wheat, but could not be expected to eat it with relish if it was mouldy or badly weevil-infected. Liking of feed is influenced by its sweetness or soundness, by bodily requirements or use. If fowls just pick at strange feed that does not necessarily mean that it is unpalatable, but merely that it is strange; hence, all changes of feed should be gradual.

EGGS—A PAYING PROPOSITION?

There is a ray of sunshine in the news that wholesale prices of eggs are raised 4d. and 5d. —North and South Islands respectively. That this margin will remove egg production from a non-paying to a fairly profitable business is true, but ... and as usual, there is a but ... the fact is that the skeleton in the cupboard still remains in the problem of suitable and sufficient poultry feed for the maintenance of full and profitable sized flocks, and a high regular rate of production. The Government Standardised Poultry Mash formula is acknowledged to be inadequate. It is obviously up to the poultry farmer himself to fortify this mash by every means in his power, to increase the standard of quality essential to profitable poultry farming. It is advisable in the opinion of experienced poultry farmers, to ensure the important vitamin content of the mash by adding Laymor Poultry Tonic regularly. The reliability of Laymor Tonic has been well proved. It is a prescription of highest merit, and definitely not a forcing spice. Laymor Tonic by £1,000 guarantee, does not contain any spice. The regular addition of Laymor Tonic to the mash will maintain health and productivity and so ensure a profitable return at the new return for eggs.

12 dozen is attained by the more efficient producer but some of these are required for incubation. On the other hand, the totals used are based on the number of laying birds at the beginning of the season, and where disease occurs, a much lower total of egg production may occur. The dividing figure used is 10.8 dozen eggs per laying bird at the beginning of the year as set out in Paton's survey. The 10 farms show a return of less than 10 dozen eggs per bird at the beginning of the season.

ITEMS 1 TO 10.

per dozen.

The various items are based on Paton's analysis of costs with in-
General Items.—The total of these items are estimated to cost 1.78d. creases where required.

(1) Paton's figures for rates represented 0.16d. per dozen. The increases of rates has been somewhat variable but on a considerable scale and the increase to 0.20d. is regarded as very conservative.

(2) **Fire Insurance.** Paton's figures of 0.03d. should be increased by at least one third to 0.40d.

(3) **Cultivation and Seeds** is considered to be increased from 0.21d. to 0.28d. an increase based on known seed and cultivation cost increases. It includes Paton's Mechanical and Horse Cultivation charges as well as charges for seeds, etc.

(4) **Litter.** The purchase price for straw is considered to have increased by 100 per cent. from 0.23d. to 0.46d. Owing to the great increases of heading grain, prices of straw are at least double 1940-41 prices.

(5) **Medicine and disinfectants** from 0.06 to 0.08—33 1-3 per cent. increase to allow for increased prices for these articles.

(6) **Incubator and Brooder Power and Fuel**, 0.14d.

(7) **Chick charges**, 0.14d.

(8) **Light and power, and water charged**, 0.04d.

These are considered to be the same, although some increased costs in establishment of emergency plants have been incurred by certain commercial poultry producers and larger losses through power shortage have at times occurred.

(9) **Sundry.** The amount for this item was increased from 0.16d. to 0.20d., an increase of 25 per cent.

(10) **Purchased stock** increased from 0.18d. to 0.20d., an increase of 10 per cent.

(11) **Sales of Culls and Manure.** A very conservative death loss in 1,000 birds at the beginning of the season is 10 per cent. or 100. With 600 annual replacements this means at most 500 for sale at a time when they will bring in any amount worth taking them to market. 500 sold at 4/- net brings in £100. For sale of manure £14 is allowed although many men have practically no means of realising on this item. This raises Paton's figures of 1.02d. to 2.53d.

(12) **Food.** Costs are based on an estimate of 50lbs. wheat, 50lbs. mash, plus 3lbs. shell grit per bird at the beginning of the year. Good quality extra dry imported wheat would probably be slightly more economical per lb. than New Zealand grown fowl wheat. The economy of the new Standard Mash has not yet been tested out.

At the time of Paton's Survey the mash used was estimated to cost £8 per ton. The price of the new Standard Mash is £11/15/- per ton, Christchurch; £12/15/-, Auckland; Wellington, £12/15/-; and Dunedin, £12/5/- (refer to Appendix No. 3—Mash Prices).

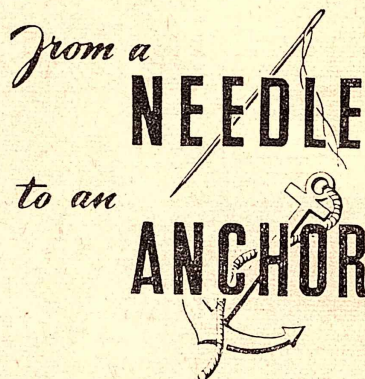
The estimated cost for wheat is based on Wheat Committee sale prices to the registered poultry producer buying through Wheat Committee subsidy (see Appendix No. 3). Buying through merchants, which must often be done, is more expensive.

Wheat is bought under very variable conditions as to quality, freight charges, wharfage, storage, availability and merchant charges, e.g.:—

(1) C.I.F.E. is estimated to require incurring of a charge of 2d. to 3d. per bushel for wharfage.

ROOSTERS MAY BE FULL OF EGGS.

Although roosters do not lay, H. H. Alp, Illinois extensio poultryman, says a rooster may be full of eggs—that is, he can influence the rate of egg-production in his pullet offspring. By carefully selecting the right males—those from breeding flocks with desirable records of production, liveability and rapid growth—the foundation can be laid for a successful poultry programme. In the event that last year's males produced satisfactory offspring, it would be advisable to use the same ones.



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- (2) A rebate is received on sacks making the net loss on undamaged sacks of a minimum of 2d. per bushel.
- (3) Railage alone from Wellington to Levin at lowest rates is 5d. per bushel.
- (4) Distances from rail to main distributing centres range from an average of round to 10 to 20 miles for Auckland, Christchurch, and Dunedin, and distances of 50 miles or over for areas such as Hamilton and Palmerston North located at long distances from the main ports.
- (5) We have estimated very conservatively an average of 5½d. per bushel for cartage, railage and delivery.
- (6) The minimum cost per bushel on the farm is estimated at 7/3d., North Island, and 7/1, South Island, for the year's supply. The usually reported figures are higher than this.

The prices of 7/3d. and 7/1d. per bushell of 60lb. are equivalent to prices of 6/0½d. to 5/11d. for 50lbs.

Mash delivered (at a charge of 15/- per ton as per schedule) averages £13/10/- per ton, N.I., and £12/15/- per ton, S.I.

6/9 per 50lbs. for North Island.

6/4½ per 50lbs. for South Island.

Adding a charge of 3d. in each island for 3lb.s of shell grit, the total cost per bird is:—

13/0½ N.I. equals 14.49d. per dozen.

12/6½ S.I. equals 13.94d. per dozen.

For the purpose of a single statement these have been averaged at 14.22d. per dozen.

(13 Labour. A charge of £7/10/- per week or £390 per year is made for the owner's family labour. Out of this sum he must make provision for a house, etc.

A charge of £75 is made for hired casual labour. This labour would be required for three months plus a holiday allowance in addition. These charges are in fairly close agreement with the dairy farm labour cost allowances for 1946/47. A worker on a dairy farm, £5/10/- per week (lowest rate), earns £286 per year—£71/10/- for three months plus holidays allowances, £75. An owner on a dairy farm is estimated to earn £312 cash plus house and perquisites estimated at 30/- per week—£390 per year.

(14 Transport. Some eggs are freighted from the South Island to the North Island at a cost inclusive of returning crates, etc., of over 2d. per dozen. Some eggs are sold free of freight charges. From information supplied by the Goods Service Charges Tribunal the average increase of cartage charges since 1940/41 has been about 11 per cent. in the main poultry districts. This raises Paton's figure from 0.73d. to 0.81d. per dozen.

APPENDIX No. 3.

POULTRY FEED PRICES.

Set out hereunder, figures to confirm that under fixed prices the price of poultry feed is approximately the same in both Islands with a slight advantage in favour of the South Island.

Feed wheat is sold by the Wheat Committee to North Island merchants at 6/5, sacks included, c.i.f.e. For this wheat the poultry farmer pays 6/8d., sacks included, for 10 sack lots cash ex ship. In the South Island the price to merchants is 5/9d., sacks extra, f.o.b., March, Tuscan basis. This is sold to poultry farmers for 5/11d., f.o.b., sacks extra, for 50 sack lots or more direct overline. Increments in South Island wheat are imposed at the rate of 1d. per bushel per month for

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the months of April, May, June and July, at 1d. per bushel for August and September, plus costs of holding beyond these months. It is estimated that these increments add an average of 4d. per bushel to the poultry farmers' price. Thus the South Island producer pays an average of 5/11d. plus 4d., plus 4½d. for the sack, making his price 6/7½ f.o.b., as compared with the North Island, 6/8d., c.i.f.e. The South Island producer, therefore, appears to have an advantage of about 2d. per bushel when the difference between f.o.b. and c.i.f.e. are considered.

Standard Mash is sold at various prices throughout the Dominion, and here the South Island producer has a slight advantage. I quote hereunder the fixed prices for this mash for ton lots or more ex manufacturers in each of the four centres:—

Auckland	£12/15/- per ton plus 15/- for dlvy.
Wellington	£12/15/- per ton
Christchurch	£11/15/- per ton
Dunedin	£12/5/- per ton

Difference in Egg Price: The difference in the egg price as between the North Island and South Island came about in the days of free marketing when the difference represented the cost of shipping from the South to the North Island.

APPENDIX No. 4.

CAPITAL INVOLVED FOR A FARM OF 700 LAYING BIRDS AT THE BEGINNING OF THE SEASON.

Land, 4 acres	£250	
Poultry Buildings £1,120 at 2/3 value	747	
Plant £450 at 2/3, value	300	
Poultry Stock	327	
	£1,624	
Annual Charges:		
Interest on Capital of £1,624 at 4½%	£73	
Maintenance and Depreciation of Buildings, Plant and Water Supply	100	
Rates	6	
Fire Insurance	2	
	£181	
General:		
Cultivation and Seeds	9	
Litter	15	
Medicine and Disinfectants	3	
Incubator and Brooder, Power and Fuel	4	
Chick Charges	4	
Light and Power, -30/-; Water Supply, 10/-	2	
Sundries	6	
Purchases of Stock	6	
	49	
	230	
Less Sale of Culls and Manure	80	
	150	
Feed: 50 lbs. wheat, 50 lbs. mash, 3 lbs. shell grit per bird at beginning of year	448	
Labour at £7/10/-	390	
Transport at 0.81d. per dozen	26	
	£1,014	
Price required for 7,560 dozen sold at 10.8 dozen eggs per laying bird at beginning of year—32.2d. per dozen free of commission		£1,014

The Fowl's Sense of Sight

The fowl's sense of sight is well developed. The eye is relatively large for the size of the fowl, and the eyeball is only slightly movable by four straight and two oblique muscles. The iris—the coloured muscular diaphragm surrounding the pupil—contains a pigment which determines the colour of the eye, while the pupil, or opening in the iris through which the rays of light pass to the retina, is black and round. Fowls have a third eyelid called the nictitating membrane, which is located at the inner corner of the eye and moves across the eye obliquely downwards and backwards, the chief purpose of this being apparently to keep the dust out of the eye. There is a tear duct in the inner angle close to the temple; tears secreted by the tear gland are drained from the eyeball by two small canals which extend into a sac, and are carried from this by a tube into the nasal cavity. When a fowl has bubbles in its eye it is due to air coming up the tear duct through discharge from ulceration of the inside of the bottom eyelid.

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We now have full range of Chick Mash, etc. mixed to Govt. formula.

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Breeding For Better Egg Yields

DR. COLES DISCUSSES THE GRADING OF FLOCKS.

MEANS of grading up a flock for egg production were outlined by Dr. R. Coles, Superintendent, Ministry of Agriculture's Poultry Advisory Service, at the recent Northampton Conference.

If you have a fairly large flock, he said, say, some 500 to 800 birds, and they are not too bad and carry no obvious troubles, then you have probably got the basic material for working up to a good flock. You will have to carry out progeny testing.

Care is needed at this stage. The breeder must be ready for disappointment. He must look at the results of the matings carefully and endeavour to give due consideration to their results—eliminating if possible the effects of environment.

The breeder must realise that the results can only give re-arrangements of the genetic characteristics already in his flock. The close relation achieved in in-breeding will result in the emphasis of some good points and some bad—and produce some just average birds.

Now it is not the slightest use culling the bad specimens and carrying on. I should make it clear that I mean culling on the customary basis of assuming you can distinguish the genetical make-up by handling. You can't! The effect of any one mating is shown in the whole of the progeny—and you are blinding your eyes to the value of the work if you throw out the assumed "duds" and carry on with the rest.

If properly used that mating should show you the points you want, or should want to know. It has, as it were, applied a magnifying glass to the qualities of the parents. You may be disappointed to see the hidden poor qualities revealed by some of the progeny. The cure is more in-breeding. You must watch for the birds which on test give the best results.

Be sure your poor birds are poor for the genetic factors you want, and that their poorness is not due to environment—being pushed away from the feeding hoppers or

being bullied.

You must now select those birds which, as far as you can tell on test, show the desired qualities and carry on in-breeding with them till you have an in-bred flock in which all the progeny of the matings carry the desired factors.

If none of the progeny showed good results, you had better scrap the lot and start with an entirely new flock.

By this means it is possible to breed by test a flock which carries various characters—the more characters the greater difficulty. Every factor you want to introduce must be brought in by a bird which should be tested before you buy it or before you add it to your flock. Every new factor you introduce makes it more difficult to keep existing ones fixed.

When in-breeding you must keep a watch for mutation, the natural

—and very upsetting—change in any genetical characteristic. That will put paid to a good deal of your work. Moreover, you must also be careful to guard against the loss of any gene.

Having regard to these difficulties it is not a bad idea for two or three breeders to start in-breeding from the same source. They can then usefully draw on each other for new blood if they have any set-backs. There is not so much violence, if you can call it that, when the new stock is introduced.

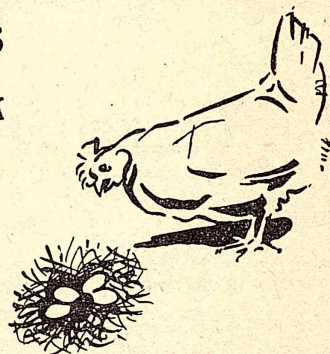
Finally, if your birds have the genetic potentialities of high egg production and viability, and the power to transmit these factors, and you manage them well, don't worry about harmful effects of high egg production. There is no scientific evidence to support this belief.—"Modern Poultrykeeping."

Vermin-Free Hens

Save Yourself Hours of Work

USE

COLUMBIA
NEST EGG
INSECTICIDE



Just place one in each nest—it does the work while the hen is laying. Lasts 7 to 12 months. Will not affect the eating qualities of hens' eggs. Two in the straw of the dog kennel will banish fleas. Rats, vermin, fleas, and parasitic insects, stay away from the insecticide eggs. Hens prefer nests with insecticide eggs.

Easy -- Positive -- Cheap

6d. Each

Obtainable Everywhere.

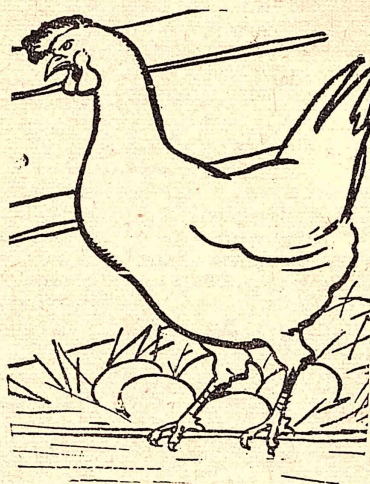
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Poultry-farming PAYS AGAIN!

Higher
prices

For

EGGS!



But feeding problem still remains . . .

Make sure of profits and high production. It's good news that the price of eggs has been increased in both North and South Islands. Poultry farmers can now feel confident in building up their flocks to normal numbers . . . so long as the feeding problem is carefully provided for. The standardised mash is acknowledged to be inadequate in food properties. Don't take risks! Fortify the daily mash with the Poultry Tonic that guarantees a full and adequate supply of essential vitamins and minerals for health and a high standard of productivity. Laymor Tonic is a prescription of the highest merit. Laymor Tonic does not . . . by guarantee . . . contain any spice. Laymor Tonic enables the hen to carry out its natural function of laying to the highest extent.

Fortify the Standard Daily Mash with . . .

56lb. boxes	74/6	(= 1/4 lb.)
28lb. boxes	39/6	(= 1/5 lb.)
7lb. cartons	10/6	(= 1/6 lb.)
1lb. cartons	1/9	(= 1/9 lb.)

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LAYMOR

POULTRY TONIC

Managing Pullets For Winter Egg Production

By F. C. BOBBY, Superintendent of Poultry Husbandry, Wellington.

WITH the present shortage of eggs and the accentuation of that shortage during the winter months, winter egg production assumes even greater importance than in more normal times, though it is always important because the higher price of eggs in that season vitally effects the income from a laying flock. The winter has not yet been reached, but the method of handling a flock of laying birds beforehand has a considerable bearing on production during the winter. A number of factors which affect winter egg production are discussed in this article.

WINTER egg production is an inherited characteristic, and therefore pullets which are known to have laid consistently through the winter are valuable as breeding hens in the following spring. Though it is difficult to be certain about winter production unless trap nesting is employed, ordinary egg recording per house or flock unit will indicate the qualities of pullets. If a flock does well through the winter and other required attributes are satisfactory, those birds should receive first consideration as breeders.

Though that point cannot be made use of for 1947, it should be borne in mind in future breeding programmes. It is not uncommon for commercial producers overseas to trap nest pullets for the three winter months, when work on the farm is less than at any other time of the year, to find the best winter producers from which to select breeding birds later. For the same reason special awards are often given to pens of pullets putting up the best egg scores during the winter at laying trials. Winter production as an inherited characteristic should not be overlooked if the best results are to be obtained from egg production.

Time of Hatching.

Without doubt winter egg production is influenced by the date at which pullets are hatched and the manner in which they are reared to the laying stage. Though there may be much to be said for the well-grown, early-hatched pullets which rear easily and often with low mortality, there is always a risk of an autumn or early winter neck moult just as egg prices reach the peak for the year. To have a good flock of pullets

out of production at that time is exasperating. Therefore it is generally considered that August-hatched heavy-breed pullets and September-hatched light breeds are the most successful for winter production. It must be admitted, however, that whether pullets go into a neck moult will depend largely on management and weather.

A point which must be emphasised is that late-hatched pullets, whether heavy or light breeds, usually come into production too late to supply eggs when prices are best in other words they are not good winter producers. Pullets hatched out late in October and November do not rear as well as those hatched earlier in the season, and are often slow coming into production if the weather is poor.

Good Rearing Necessary.

Good winter egg production depends to an appreciable extent on a good rearing season. Satisfactory production can be expected from well-bred birds which develop good frames and sound constitutions. Pullets should not be forced too quickly, but allowed to mature quietly. Perhaps the most harmful condition for growing pullets, and apart from an outbreak of disease, is overcrowding, which checks their growth and undermines their constitutions. There is little doubt that if that occurs egg production suffers later.

Pullets should be moved into the laying houses as soon as their combs begin to redden. It is desirable that they should settle down in their new quarters before coming into lay.

This is the time when a good bed of dry litter must be built up,

as it is essential to avoid having to clean out after the summer weather has broken. Once new litter becomes damp in autumn or winter, maintaining dry litter in the house is almost impossible, and excessive cleaning out becomes necessary. Damp litter is dangerous, as it assists in bringing on colds, one of the worst detractors from satisfactory winter production. A good depth of dry litter built up in late summer is the best method of avoiding later trouble from damp floors. That is an essential management factor in winter egg production.

Winter Housing.

The method of housing birds to ensure good production will depend considerably on the district and the winter weather expected. Good ventilation is essential, but warmth, freedom from draught, and dry conditions are all conducive to good production. Poultry producers in the South Island, where winter conditions are harder than in the North Island, favour laying houses low at the front and higher at the back. That type of house benefits to the full from the low-pitched rays of the winter sun and in consequence tends to be warmer than houses built with the reverse slope—high at the front and low at the back. Lofty, cold laying houses are far from ideal for winter production.

Local conditions will also have much bearing on whether birds are run intensively or semi-intensively during the winter. In districts subject to cold winds and rain, and where the soil is heavy, better production will be obtained in most cases by running the birds intensively, particularly if any grass run available is limited in size and well worn.

But the birds should either be run intensively throughout the winter or be permitted to run out at all times irrespective of the weather (snow-covered ground excepted). Keeping birds in when the owner considers the weather un-

suitable and letting them out at other times often leads to colds. Birds can stand inclement weather if they have sound constitutions and good housing to return to after running outside.

Importance of Feeding.

Without doubt the feeding programme for pullets during the autumn and winter is one of the most important factors in egg production at that time of year. Good and consistent feeding is difficult at present with poultry foods in short supply and regularity of distribution a major worry, but while acknowledging these difficulties, poultry producers will still be wise to give careful thought to feeding for winter egg production and to feed their birds as well as the situation at any time will permit.

Certain fundamentals must be examined. Unless pullets have inherent winter laying qualities, no amount of good feeding will produce the desired results. But if fecundity is inherited, good feeding is essential, the object being to persuade the bird to eat sufficient food to maintain body weight, maintain body heat in cold weather, and yet have a surplus to produce eggs. If birds which come into lay in the autumn are not given food of sufficient quantity, they will produce eggs at the expense of their body weight. Once that occurs any check caused by bad weather, a change of food, or mishandling will put such birds into a partial or neck moult.

Food consumption must be in direct relation to egg production. The statement that laying birds in production can be overfed is a myth—they can be wrongly fed but not overfed. It is also true that during cold weather birds require more feed to maintain body heat—after all, the same applies to human beings. Lastly, food is required to make those winter eggs; they cannot be produced from an inadequate amount.

In winter pullets require increased quantities of protein-rich foods. Without extra protein the pullets may not be stimulated into satisfactory production. They depend almost wholly on the owner for protein at that season, as insects, worms, and natural proteins are almost unavailable even if the birds are running out.

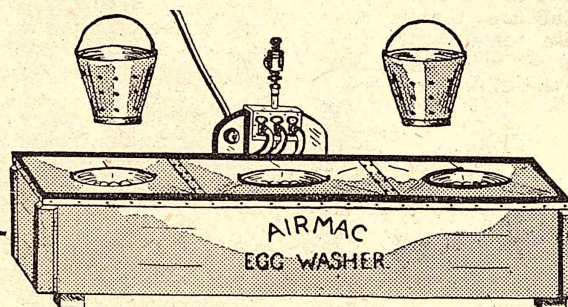
Adding extra meat meal to the mash in winter is not necessarily forcing, though it would be if given in early autumn when the birds are coming into production or in spring when the natural flush season occurs. A winter laying mash can well carry 15 per cent. of total digestible protein without being forcing. That means in the average mash up to say 10 or 12 per cent. of 60 per cent. protein meat meal. Where maize meal is available up to 20 per cent in the mash is an excellent winter feed.

Artificial Lighting.

The best evidence about the quantity of food required for winter egg production is the value of artificial lighting during winter. There is a mass of practical evidence, experimental and commercial, to demonstrate that lighting in winter is a successful aid to production. The reason is the increased food consumption and not, as is sometimes suggested, that the birds are active for a longer

period of the day. Activity helps to maintain their health, but it is the food that produces the eggs. The winter lighting of pullets' laying houses can be recommended, but poultry producers are urged to use this lighting in the manner found by experiment and experience to be most efficient while yet not placing an undue strain on the birds. Details of artificial lighting for winter egg production may be obtained from the Department of Agriculture.

Where lighting is not practicable food consumption during the shorter winter days may be increased by careful feeding management. With birds fed dry mash and grain an extra feed of wet mash will only replace what the birds would have taken from the dry mash hoppers. If it is fed later in the day, the birds are induced to eat it in addition to their dry mash because of the palatability of wet mash. When birds are fed wet mash and grain it has been found that a feed of soaked grain, including meat meal, will



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Here's the Egg Washer that does the job! The Airmac Egg Washer works on a pulsator principle . . . the buckets of eggs are placed in position and are perfectly washed and cleaned without handling. The Airmac saves more than an hour a day on the average Poultry Farm.

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induce greater consumption, particularly if given early in the morning as soon as the light will permit.

Whatever the system, a full grain feed at night, including where possible some kibbled maize, is a means of maintaining body weight. Any programme of increased feeding means increased labour, but in a cold climate that labour is amply rewarded in increased egg production.

Obtaining high winter egg production is skilled work: Production for the remainder of the year is largely a natural function checked only by mismanagement.

Colds Are Expensive.

Colds among pullets are probably the worst enemy to be faced by poultry producers during winter. If neglected they lead to roup and severe trouble, but even in mild form they reduce egg production to an extent that results in heavy financial loss. As all experienced poultrymen know, once colds start in a flock in winter they are particularly difficult to eradicate. The important point is to avoid these colds rather than to cure them. That is not always simple, but the following points should receive attention:—

Avoid damp litter.

Avoid draughts in the laying house.

Avoid overcrowding.

ENSURE GOOD VENTILATION; stuffy houses are more conducive to colds than even moderately draughty ones.

REMOVE CULL BIRDS. A sickly, weak bird is often left among a batch of healthy pullets, and equally often these weak birds contract colds which remain with them for long periods. Such birds start an outbreak among the healthy birds and reinfect them after the healthy birds have been successfully treated. The bird of poor constitution is not only a poor producer or a passenger but a constant menace to the healthy birds in the pen.

Sulphathiazole Treatment.

Many forms of treatment have been recommended for the common cold but most are only partially successful. Another method, and one that is state effective, can now be add

use of one of the sulpha drugs, sulphathiazole. One pound of this drug in powder form is added to every hundredweight of mash in dry form and the treatment continued for three days. Sulphathiazole is expensive and requires a veterinary officer's prescription before it can be bought. With average food consumption treatment for three days costs 3d. a bird. If one or two eggs a bird are saved and the colds are eliminated, this treatment is really not expensive.

It must be made clear, however, that no claim is made for a cure of diphtheric roup by the use of sulphathiazole.

Green Food Essential.

Most poultry producers to-day are so well acquainted with the necessity for feeding green food that no undue emphasis need be laid on this essential subject. Green food contains vitamin A, which is associated with the building up of a resistance to disease and troubles such as colds and roup in poultry. It will be appreciated, therefore, that the feeding of green food is essential in any programme for the production of winter eggs.

The method of feeding green food varies, but it is suggested that consideration be given to feeding it late in the day during the winter. Green food is bulky and birds' crops have only a limited capacity at any one time. If fed early in the day before a mash feed or incorporated as chopped greens in the mash, it must limit the quantity of mash which can be eaten. Though important, green food in itself is not an egg-producing food, and, as it has been

demonstrated that increased mash consumption is desirable during the winter, the feeding of green food should not be at the expense of other consumption. If it is trough fed late in the day, the birds will still eat a reasonable quantity, as they have a natural desire for it, and the consumption of egg-producing and body-building foods will not be reduced.—Reprint from "N.Z. Journal of Agriculture."

THE EFFECT OF RESTRICTED FEEDING

Good, well-balanced feed is not enough. It must be fed in sufficient quantities. There is a tendency when feed is short or the price of eggs low, and feed high, to restrict the amount of feed, in the hope that, although fewer eggs might be laid, the profit will be greater because of reduced feed costs. However, American experiments have shown that restricted feeding below the amount eaten when the birds have free access to it, results in lower profits.

The fear of over-fattening birds with too much feed is unfounded. Birds which do become overfat in the laying season are either naturally low producers which are turning feed into fat instead of eggs, or birds which are not getting a ration sufficiently high in protein to allow a maximum egg production.

Reducing food intake to seven-eighths of the amount eaten when given free access resulted in a decrease in the number of eggs per hen from 182 to 124 per year, and increased the amount of feed per dozen eggs from 4.4 to 5.6 lb. Therefore full feeding pays.

EGGS!

EGGS!

EGGS!

For best service at lowest cost there is only one Firm, and that Firm is—

**TURNERS & GROWERS LTD.
AUCKLAND.**

This Firm has the best egg-grading floor in New Zealand—the most up-to-date egg-grading machines—expert personnel in charge of the business, and last but not least, gives a substantial rebate from Commissions. For particulars write:—

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CITY MARKETS
AUCKLAND.**

Otago-Southland Association's Presentation to Mr. Gill.

At the conclusion of the general business of the Otago-Southland Provincial Council meeting a farewell ceremony was arranged in honour of Mr. Gill on his retirement from the New Zealand Zealand Poultry Board. Mrs. and Miss Olive Gill, accompanied by the wife of the President (Mrs. D. Christie), were present by invitation.

Very appreciative reference was made by all delegates in respect to the long years of service Mr. Gill has given to poultrykeepers. The Marketing Regulation had been formed in the early stage to combat wrongs and abuses in the existing methods of marketing prevailing at that time, and which Mr. Gill more than anyone else had analysed; and in consequence compelled the Industry to take note.

Tribute was paid Mrs. Gill for her self-sacrifice in enabling Mr. Gill to be so frequently away from his farm to meet the calls of branches and the N.Z. Poultry Board throughout his years in office.

Mr. Gill in reply expressed the pleasure he had felt in a job in which he had been loyally backed by those around the table. What had been but theories and ideas twenty years ago had become an actuality that had fully compensated him and his family for any sacrifice, and gave them the pleasure of knowing they had been together in a job well done. Mr. Gill concluded by wishing his successor, Mr. G. T. Graham, the same loyalty and joy in his new position as he himself had received and felt.

Mrs. E. Watson, the one lady member of the Council, then made a presentation of an oak chiming clock and a crystal set comprising water jug and goblets, as a token of the high esteem in which both Mr. and Mrs. Gill were held by members of the Association.

THE ACT OF PREENING

When chickens of two months or so of age are closely observed they will be seen to put their heads under the feathers near the base of the tail, and to preen themselves. This happens chiefly when they are bunched together and resting. It

is a perfectly natural proceeding. To find out what they are doing, take a look under the feathers at the base of the tail, and a small oil-pimple will be located. The chicken applies gentle pressure to this organ with its beak and face, causing oil to flow therefrom. It then applies the oil to other parts of its plumage, working with the beak at the roots of new feathers coming through, assisting them through their sheaths. As a result of this preening the plumage becomes glossy.

Should the oil-pimple become dry and cease to function the growing stock will not remain healthy, and the plumage will look dry and lack sheen or gloss. The remedy is to increase the oily ingredients of the mash without delay and the flow of oil will again increase. The organ can become choked and will swell up and harden, when it may be wise to bathe the parts with warm water. Always pick up a few of the growing stock to examine the condition of the oil-gland. When in normal condition it is moist, and the parts around are clean; if out of working order it will be found dry and the feathers soiled or dirty.

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CHRISTCHURCH

Poultry Thefts

Poultry thieving is again rife, especially in the Canterbury area. This contemptible type of thieving is all too common, and is usually perpetrated by irresponsible youths. It is probably more mischief, hooliganism, or easy money, as there can be no want of food these days.

If the penalty was more widely known, it might be a deterrent. The maximum penalty for thefts of poultry under £50 in value under Section 231 of the J.P. Act, is three months' imprisonment or a fine of £20. If the value of the poultry stolen exceeds £50 a charge can be laid under an Indictment Act and imprisonment up to six months imposed. Any subsequent offence by an individual is liable upon conviction to 12 months' imprisonment.

Grit for Poultry

The provision of shell grit alone is not entirely sufficient for poultry, as shell, which is the primary source of calcium, is soluble in the digestive juices of poultry and therefore does not stay in the gizzard for long. Hard flinty insoluble grit is necessary to allow efficient mastication and the fullest utilisation of the food consumed, especially so if the fibre content is fairly high.

Containers filled with a mixture of shell and hard grit are desirable. If they are placed outside in the weather, see that drainage holes are perforated in the bottom to allow any rain water to seep through and thus give the grits a chance to dry and sweeten.

Age to Keep Hens

It is surprising the number of hens that are kept long after the age when they have the physical ability to produce sufficient eggs to pay for their upkeep. This is more noticeable amongst many farm flocks and backyarders, where there is a lack of interest taken in the birds.

Most hens when they reach the age of about two and a half years have come to the time when they are no longer profitable commercial egg-producers, and therefore should be sold. However, if the poultry-keeper is breeding his own stock and some of the two-and-a-half-year-old hens are of exceptional breed type and still show

vigour and vitality, they should most certainly be retained and specially marked for the breeding-pen, for experience has shown that such hens are amongst the most valuable breeders.

As there is no way of definitely telling the age of a hen all birds should be leg-banded. If all pullets were leg-banded, say, on the left leg just before they come on to lay, and a second ring was placed on the right leg at the end of the first laying-season, there would be no difficulty in picking out the different ages and culling them when their term of usefulness has ended.

Mash Savers.

If hoppers are placed loose and not semi-fixtures a roller should be fixed to the top apex of the triangle ends; the roller prevents the birds from perching and fouling the mash; also add another simple device made of fine mesh netting with heavy gauge wire soldered along the edges (to prevent wattle injury), the netting thus prepared being one inch smaller than the hopper, rides on top of the mash and stops it from being billed out and wasted.

The permanent hopper should also have this device, and if necessary a slanting board to keep the birds from perching above. Some poultry-keepers prefer hoppers outside the shed with just enough head room for the fowls to obtain the mash.

The wire-netting mash rider is not fully efficient if used in a V-shaped hopper, as the mash level in such case would need to be kept at least one-third full as it could not be entirely emptied by the birds.

Marketing Eggs

The egg is one of the choicest food products that nature gives us, eggs are never better for human consumption than when fresh laid. The quality of the egg may be very easily affected by the management of the flock and the conditions under which they are kept after being laid. Customers are quick to detect poor quality in eggs, so the marketing of a high grade product becomes a matter of first importance to the poultryman, if the consumer market is to be increased. The time will come when surplus eggs will become a problem and demand will only be possible by marketing a quality egg.

English Poultrymen's Plight

A correspondent recently forwarded a letter received from the Assistant Secretary and Treasurer of the World's Poultry Science Association, London, wherein the plight of poultry-farmers in England is told in respect to poultry food supplies.

The Secretary states that the position at present is worse than at any time during the war years. From 1st July to 30th September, poultry-keepers were only allowed one-twelfth of their pre-war ration, but last October an increase was granted to one-eighth, but many poultry-keepers are worse off as concurrently with the higher rate the Government instituted an acreage deduction, which meant that 1½ birds' ration per acre of land holding, was deducted, and as quite a few poultry-farmers have comparatively large areas for general farming, they are worse off than before.

TURPETINE FOR WORMS

Genuine vegetable turpentine as supplied to painters is satisfactory for treating roundworm infestations, but not the so-called mineral turpentine. The best plan is to secure medicinal turpentine from a chemist. Allow 1 drop per fowl which should be well shaken up with 1oz. or two table-spoonsful of fresh milk per head. This mixture should be thoroughly mixed with half the usual quantity of wet mash, and a teaspoonful of powdered aniseed per each 10 fowls. At night, in place of the grain, give the other half of the mash with Epsom salts 12ozs. dissolved in the mixing fluid for every 100 fowls. After the salts have functioned thoroughly clean out houses and yards.

ELUSIVE PREPOTENCY.

A cock lacks prepotency when its cockerel chicks are not like it, although the resemblance is not clear until the chicks are fully grown. All fowls have not got this characteristic to the same degree. A cock or hen may have a long pedigree, on carefully preserved blood lines, but prepotency does not always follow blood lines. Fowls that are bred to a certain type year after year are, however, more likely to produce chicks to their likeness than those which are carelessly bred.

WHY FEED GRIT TO POULTRY?

By W. A. BILLINGS

(University of Minnesota)

Haven't you heard the common expression "scarcer than hen's teeth". I expect many people use this phrase without ever stopping to think that poultry actually have no teeth like other kinds of farm livestock. Since poultry eat large amounts of coarse, hard grains, to say nothing of dry grasses, nature must have provided some sort of mechanism to grind up such things. Nature did just that when it put a gizzard in birds. The gizzard is a very muscular organ, in fact the whole thing is nothing more than a very powerful muscle surrounding a cavity with a very tough lining.

The next time you clean a chicken take notice. The part you eat . . . if you like gizzards as I do . . . is all muscle. When you peel out the gizzard lining, observe how thick and tough it is. The gizzard has to be tough and muscular because the job it does takes

the place of teeth and actually does a much better piece of work. Let's follow some whole corn through a bird's insides, shall we.

The chicken picks up the corn and swallows it whole . . . no chewing at all here. It passes down into the crop which is not much more than storage space which bulges when full. Most people think a hen has no stomach. It has, though. The stomach is that slight enlargement you will see just in front of the gizzard. Most people would miss it.

NEED STONES FOR GRINDING.

From the crop the corn passes through this stomach on into the gizzard. Here the corn is ground. To do a good job of grinding, there must be stones or pebbles in the gizzard. When the gizzard is loaded, it begins to expand and contract, the corn mixes in with the stones and before long it is ground up by rubbing between the millstones (the pebbles) and then passes on into the intestines. If there were no stones in the gizzard, it could do little or no grinding. In time the stones grind themselves into fine sand and so

have to be replaced. That's why we must have gravel available in hoppers or the soil where the birds run must contain gravel. Theoretically, if we feed birds very finely ground feed, they would not need gravel. That is, if they did not eat any rough stuff on the side. They usually do.

First, grit should be rather insoluble so it will stay longer in the gizzard. Soft material like marble and ordinary limestone is usually considered unsuitable. This powders quickly and the birds must eat large amounts and replace it frequently. Besides, these minerals contain too much calcium. The so-called insoluble grits, such as granite, quartz and ordinary gravel do very well. As a matter of fact, pea or bean size gravel from a nearby pit is my choice.

Turkeys ranging on a quack grass pasture eat large amounts of this tough, dry grass and quite a few die from impaction of the crop and gizzard unless hard grit is constantly available. Grit is cheap insurance against this type of digestive trouble. Did you ever notice pheasants gulping down gravel along a country road toward evening?—"The Produce Packer."

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Weeks ending—	Heavy	Standard	Medium	Pullet	Large Duck	Small Duck
Feb. 7th	2/5	2/4	2/2½	1/11½	2/4	2/2½
Feb. 14, 21	2/8	2/6	2/4½	2/-	2/6	2/4½
Feb. 28th	2/10	2/8	2/6	2/0½	2/8	2/6

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WEEK ENDING JANUARY

15th, 1947.

45th WEEK. 315 DAYS.

AUSTRALORPS.

J. H. Burke (1)	3	186
J. H. Burke (2)	0	187
C. J. Murray (1)	1	178
C. J. Murray (4)	3	128
Mrs. E. M. Lucas (1) ..	0	187
Mrs. E. M. Lucas (2) ..	0	102
C. S. Munnings (1)	3	99
C. S. Munnings (2)	4	142
G. Sibley (1)	0	178
T. S. Dow (2)	5	238
T. S. Dow (3)	3	207
T. Weaver (1)	5	154
T. Weaver (2)	0	144
G. Biggs (1)	0	109
G. Biggs (2)	0	147
Mrs. A. Lowe (1)	5	176
Mrs. A. Lowe (2)	0	134
Mrs. A. Lowe (3)	0	187
F. S. Vinnicombe (1) ..	2	196
F. S. Vinnicombe (2) ..	5	246
F. S. Vinnicombe (3) ..	6	191
B. H. Winchester (1) ..	1	87
B. H. Winchester (2) ..	5	209
J. Bate (1)	5	222
J. Bate (2)	5	183
F. C. Johnson (1)	0	101
F. C. Johnson (2)	0	159
F. C. Johnson (3)	0	119
H. L. Watson (1)	5	161
H. L. Watson (2)	2	173
Rusden Salt (1)	3	178
Rusden Salt (2)	4	235
J. Still (1)	4	222
C. O. King (2)	5	183
C. O. King (3)*	0	119
P. H. E. Evans (1)	3	182
A. H. Ellis (2)	2	142
A. H. Ellis (3)	5	199
A. H. Ellis (4)*	5	223
A. H. Ellis (5)*	5	141
A. H. Ellis (6)*	4	181
Miss A. Jakins (1)	6	221
Miss A. Jakins (2)	1	117
Miss A. Jakins (3)	7	183
Miss A. Jakins (4)	0	198
R. Jensen (2)*	7	213
R. Jensen (3)	6	187
E. Tilley (1)	5	241

* Denotes under-weight eggs.

J. B. Lees (2)	4	226
J. B. Lees (3)	0	176
J. B. Lees (5)	5	241
J. B. Lees (6)	5	160
J. B. Lees (7)	5	212
J. N. Little (1)	0	164
T. Stevenson (1)	3	219
T. Stevenson (2)*	0	150
J. B. Lees (1)	7	165
E. P. Anderson (1)	0	161
E. P. Anderson (2)	0	176
E. P. Anderson (3)	2	173

LANGSHANS.

D. S. McInnes (1)	2	158
D. S. McInnes (2)	1	261
M. W. Hawkins (1)	3	157
M. W. Hawkins (2)	5	172
C. L. Burt (1)	4	191
C. L. Burt (2)	1	201
H. J. Anderson (2)	0	218
H. J. Anderson (3)	2	174
W. Scally (1)	4	158
W. Scally (2)	2	171

BLACK ORPINGTONS.

E. E. Dudding (1)	3	175
E. E. Dudding (2)	5	227
R. Timewell (2)	3	155
Stratford & Bates (1) ..	5	242

BARRED ROCKS.

J. Neilson (1)	6	158
J. Neilson (2)	5	205
J. Neilson (3)	6	284
J. Neilson (4)	4	229
Mrs. S. E. King (1)	3	185
S. E. King (3)	5	260
H. M. Morgan (1)	0	140
H. M. Morgan (2)	6	169
L. G. Dodd (1)	4	190
L. G. Dodd (2)	0	125
L. G. Dodd (3)	2	241
L. G. Dodd (4)	5	209
L. G. Dodd (5)*	1	144
L. G. Dodd (6)	4	185
C. McKenzie (1)	3	162
C. McKenzie (3)	6	219
C. McKenzie (4)	0	181
F. C. Johnson (1)	2	224
H. L. Watson (1)	5	236
H. L. Watson (2)	2	224

* Denotes under-weight eggs.

W. Scally (1)	0	211
Avon Lea P.F. (1)*	5	230
Avon Lea P.F. (2)	0	192
Avon Lea P.F. (3)	5	226
Avon Lea P.F. (4)	5	226
Avon Lea P.F. (4)	0	165
E. P. Anderson (2)	0	140
E. P. Anderson (3)*	0	123
K. Halliday	0	152
Mitchell & McKie (1) ...	1	141

RHODE ISLAND REDS.

R. Keetley (1)	1	152
J. R. Hanna (1)	5	190
J. N. Little (1)	1	210
J. N. Little (2)	1	152
J. N. Little (3)	5	137
E. Manning (1)	0	171
E. Manning (2)	2	171
E. E. Dudding (1)	4	166
C. McKenzie (1)	0	177
C. McKenzie (2)	0	191
G. Bews (1)	1	171
G. Bews (3)	3	240
J. Bate (1)	6	221
Mitchell & McKie (1) ..	6	219
A. F. Peat (1)*	6	189
W. Scally (1)	5	191
Mitchell & McKie (2)	5	179
Mitchell & McKie (3) ..	4	150
Mitchell & McKie (4) ..	3	191
B. W. Bliss (1)	6	174
Mrs. V. Watson (1)	4	263
Mrs. V. Watson (2)*	5	196
Mrs. V. Watson (3)	3	221
Stratford & Bates (1)	6	179
T. M. Vaughan (1)	6	225
A. Peat (1)	4	159
A. Peat (2)	3	141
A. Peat (3)	4	148
C. D. Anderson (1)	0	172
C. D. Anderson (2)	0	143
C. D. Anderson (3)	0	192
Mrs. R. Keetley (1)	0	193

ANY OTHER VARIETY.

G. Munnings, L.S. (1) ..	0	105
J. F. Griffen, L.S. (1) ..	4	213
J. N. Little, B.O. (1) ..	6	176
J. N. Little, B.O. (2) ..	5	154

LS.—Light Sussex.

B.O.—Buff Orpington.

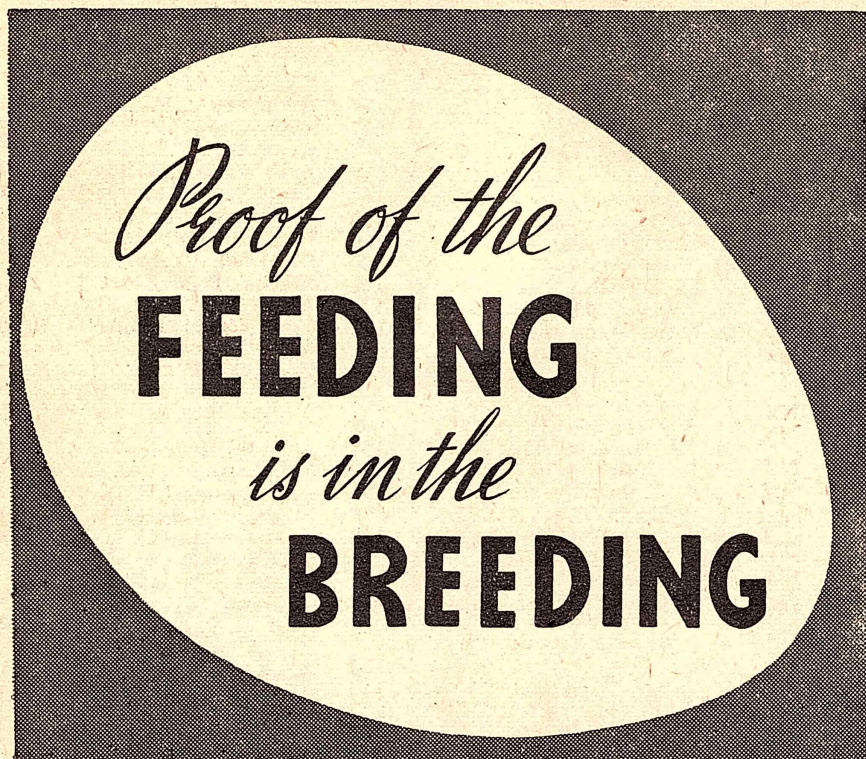
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Selecting Cockerels For The Breeding Pen

THERE are many poultrymen who have no hesitancy about culling their pullets, but tackle the job of selecting cockerels for flock mating purposes with considerable uncertainty.

The laying pullet is not difficult to detect because there are certain characteristics in females that can be used in evaluating egg producing ability. Also, the female plays a much less significant role than the male in a breeding pen.

WHY MALE IS MOST IMPORTANT.

In any single mating she is just as important as the male, but one male sires as many progeny as 15 to 20 females produce.

The task of selecting cockerels is frequently left to a professional. This policy has certain advantages, but it likewise has a distinct disadvantage, because the professional is not familiar with the strain and often errs in his judgment as a result.

Familiarity with a strain is invaluable to anyone selecting cockerels. For example, knowledge of final comb size and danger of lopped combs during the breeding seasons will aid the selector materially in reaching his final decisions on a great many birds.

MASCUINITY DESIRED.

One of the basic requirements of a breeding cockerel is masculinity. The effeminate type male is just as useless in a breeding pen as a masculine type hen.

An effeminate type cockerel is not difficult to detect. The comb, wattles, and other secondary sex characters are under-developed, especially in comparison with those of other males of the same age which display strong masculine traits.

Effeminate males are apt to be flat-breasted, long-legged and angular in appearance. They usually lack the ruggedness and driving force of masculine type males.

Anyone who has seen or worked with capons will have no difficulty in detecting effeminate cockerels, since they resemble each other in many respects. There is nothing half-way about masculinity. Either

it is present or it is lacking.

HEAD TYPE.

Next to masculinity in importance in selecting breeding cockerels is head type. Familiarity with a strain is a distinct advantage in judging males for this character. Comb size and type, eye colour and shape, ruggedness of the head, head balance, length and attachment of the beak, and colour of the earlobes should all be considered.

Comb size will vary with the breed and strain. Leghorns naturally carry larger combs than Rocks, Red or New Hampshires. Of the last three breeds mentioned, the new Hampshires will usually carry the largest comb.

Excessive size of the comb is always undesirable. Lopped combs, or any tendency in that direction, should be criticised severely in males five to six months old, because such combs will be down over the eye within a few months' time.

Confinement to the breeding house plus added growth of the comb combine to cause further lopping. The earlier cockerels can be placed on the ground as chicks, the less trouble you will experience with this lopped comb condition.

FEW WILL HAVE PERFECT COMBS.

Few cockerels will show perfect combs. Consequently all breeders must have an ideal comb in mind and select those birds that approach most closely this ideal. The presence of an extra point or the absence of a needed point on a single comb is minor in comparison to straightness of the comb or its texture.

Most breeders prefer a smooth, waxy type of comb over a coarse, sandy-finished comb. Birds with thin skin rarely carry rough or pebbly-finished combs. There is an ideal for each breed with respect to how closely the blade of the comb follows the curve of the neck.

The one fault I particularly dislike in single comb Leghorns is the tendency of the blade to tilt up in the air instead of following

the curve of the neck or even holding a position horizontal with the ground.

It is essential that a single comb be free from side-sprigs and that the comb type be true to the breed or variety. Since single combs are recessive to either rose or pea combs, single comb parents do not throw rose or pea comb offspring. Rose comb and pea comb parents will continually throw a small percentage of single comb offspring unless they have been tested for comb purity.

REDDISH-BAY EYES.

The ideal breeding cockerel five or six months of age should have a clear, reddish-bay eye with a sharply defined and perfectly round pupil. Cockerels showing a tendency towards a grey eye, or any evidence of a broken pupil have no place in a breeding pen.

One qualification is desirable, however. In the early years of selection following an outbreak of leucosis (range paralysis or lymphomatosis) the number of birds showing perfect eyes may not be adequate for mating all breeding pens.

In such instances, the results of research work suggest that it would be preferable to use the best males available on the farm, even though the eyes may not be perfect, rather than go off the farm for outside males from a source not exposed to this disease complex.

Within a period of two to three years, if the best males available are used in such cases, the eye condition will improve to the point where only males with good eyes need be employed in matings.

New Hampshires and Rhode Island Reds may show a tendency towards grey eyes, but the pupils will be well defined and no evidence of disease will show up in the flock. The American Standard Perfection specifies a bay eye instead of a reddish-bay eye for New Hampshires.

RUGGEDNESS v. COARSENESS.

Ruggedness of the head is essential, but do not confuse ruggedness with coarseness. Rugged heads will usually show a short rather

heavy beak that is strongly attached to the head proper. Rugged heads will also usually have good balance.

By "balance" I refer to a combination or blend of all the various parts, which gives the impression that the head is well proportioned.

The head should be neat and trim, but not at the expense of ruggedness.

The line of demarcation between a rugged head and a coarse head is narrow. Beginners frequently mistake one type for the other.

In drawing the line on ruggedness you should keep in mind the head type of the females to be mated with these males.

When the females tend to run to rather high refinement, I would prefer exceptionally rugged males for mating purposes, but when the females run coarse, the breeder should attempt to balance this characteristic with high refinement in males.—"Poultry Supply Dealer."

Install Glass Substitute Windows

Economy is not the only advantage claimed for the use of glass substitute windows for the poultry house. Even more important than the cost is that ultra-violet rays are allowed to pass through the windows into the laying house.

Since it is common practice for best results in egg production to keep the layers confined during autumn, winter and early spring, they are not able to get the direct rays of the sun. However, using glass substitute in the windows, or special glass that permits ultra-violet rays to pass through, enables layers to take advantage of these health-giving rays.

When installing these windows, it is a good plan to make them hinged so they will swing up inside against the roof or so they will slide down in front and remain protected until the following fall.

If these windows can be installed before the new flock is placed in their winter quarters, so much the better, since the birds will not be interrupted in getting into full egg production. With the sunlight hours growing shorter from now on, special glass or glass substitute windows should be in place as soon as possible to allow the birds all possible sunlight for their winter production.

Rats Play Put and Take

I. W. T. Munro records in the "Evening Post" the following remarkable incident attributed to rats:—

A Papatoetoe poultrykeeper reports that despite constructing a poultry-house with a six-inch overhang from the foundation posts with the object of making the house rat-proof, he found that 14 eggs upon which a hen had been sitting and two china eggs in adjacent nest boxes mysteriously disappeared.

Upon investigation in the vicinity of the house, the two china eggs were found discarded near a rat hole under a nearby bank. Thinking the china eggs had been put there as a "blind" he locked the fowl yard. Very heavy rain fell during the night, and next evening when visiting the fowl-house he was amazed to see all 14 eggs back in the nest lightly covered with straw and not one egg cracked.

The poultrykeeper suggests that the rain water probably flooded the rats out of their hole forcing them to find another place to store the eggs; the extraordinary part of the performance is the act of returning the eggs to the nest from whence they were originally stolen.

Use Scanty Litter at First

When pullets are first introduced into large laying houses and have not been used to scratching litter before, the supply of it should be scanty at first or they will not know where the grain is. The scratching litter may be gradually increased to a depth of eight inches.

ENGLAND'S POST-WAR PRODUCTION.

The actual production at the end of 1946 is roughly summarised as follows: Production of coal was about five per cent. higher than in the same period for 1945, while gas and electricity were about 15 per cent. up. Comparison with 1938 was very different—coal production was 18 per cent. down, gas production 30 per cent. up, and electricity almost 70 per cent. up. The railways carried one quarter more ton-miles of freight than in 1938. Steel production was as high as in previous peak years, and steel consumption higher than ever before in peace. More people were employed in shipbuilding than before the war; the output of commercial vehicles had increased by 50 per cent. above pre-war, and the output of farm tractors was more than double pre-war. Fewer building materials were produced than before the war although the output was rising rapidly. New permanent houses were being built at the rate of 8,000 a month. The production of cotton yarn was increasing, but was still 40 per cent. below pre-war. The wool industry was using raw materials at the rate of nearly 20 per cent. below pre-war. Very bad harvest conditions hit farms, but Britain produced 50 per cent. more cereals than before the war, twice the potatoes, 28 per cent. more sugar beet, 20 per cent. more milk and more fish. "By the end of 1946 the rate of national output was probably not significantly below pre-war over the economy as a whole."

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SCALY LEG MITE

The scaly leg mite is usually found living beneath the scales on the feet and legs of fowls, but it has also been known to burrow into the comb or wattles, or the skin around the neck. The mite may be present on the birds for some time, but the farmer seldom becomes aware of it until the scales begin to thicken and rise, and in a short space of time the legs become very unsightly. Usually the infestation remains stable at this stage, and the birds may not show any ill effects. However, lameness is not an uncommon result of the infestation and cases have been known which resulted in deformity of the legs and ultimately the loss of the tips of the toes.

Fortunately the infestation does not spread rapidly. One or two birds may remain the only infected birds in a large flock for some considerable time. Other birds become infested by crowding up on to the affected ones on the perches or in a crate, or perhaps even by

scratching among the litter where an infected bird has been.

CONTROL.

However, control of the scaly leg mite is simple. One dipping of the birds' legs in sump oil is usually sufficient to clear up the infection within 30 days. If not completely cleared in that time, another dipping should be given. Kerosene may also be used as a dip or applied with a brush, but care should be taken to see that it does not come in contact with the skin above the scaly part of the shank, as kerosene will burn a fowl's skin rather badly.

FOR SHOW BIRDS.

The sump oil dipping is likely to leave black stains on the birds' legs, and if the birds are required for showing this is not to be recommended. In this case the best cure is to apply a pasty mixture of sulphur and olive oil to the legs and rub well into the scales. This will clear up the scaly leg without leaving any unsightly stains or marks.

INTERESTING HIGHLIGHT.

This interesting highlight was submitted by Sherman Pratt, Harrisburg, Pa., in "American Poultry Journal."

"Life is real, life is earnest
And the shell is not the pen;
Egg thou art and egg remainest
Was not spoken of the hen.

"Art is long and Time is fleeting
Be our bills then sharpened well,
And not like the muffled drums be
beating
On the inside of the shell.

"In the world's broad field of
battle,
In the great barnyard of life,
Be not like those lazy cattle!
Be a rooster in the strife!

"Lives of roosters all remind us,
We can make ourselves sublime,
And when wasted leave behind us
Hen tracks on the sands of time.

"Hen tracks that perhaps another
Chicken drooping in the rain,
Some forlorn and hen-pecked
brother
When he sees, shall crow again."

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AN AUTOSEXING R.I.R.

How the Redbar was Made

THE creation of autosexing breeds of poultry was made possible by the discovery of Punnett and Pease that in a breed with brown down there is quite a striking difference in colour between the male and female chicks when the "barring" factor is present.

When Punnett made his Cambar on the basis of the Campine, states Dr. A. L. Hagedoorn, in "Poultry Farmer" (England), I decided to do the same thing with three more commercial breeds—with the Barnevelder, the Brown Leghorn, and the Rhode Island Red.

There are two different methods of making such an autosexing breed. We can hybridise our breed with any other which carries the barring factor, and, by selection among second and third generations, create an autosexing breed. Or else we can start from a hybrid, and proceed by repeated back-crosses to the pure breed we want to change. I choose the second method, as it has the advantage of great simplicity, and because it makes it possible to utilise excellent highly selected breeding stock in every succeeding generation.

The work of making an autosexing breed really consists of introducing the sex chromosome from a breed with the barring factor into the cells of the breed to be changed, and this can be done by repeated back-crosses and continuing the series with one or a few barred birds in every generation. To make the autosexing Barnevelder I used nine back-crosses, and long before this the fowls became pure Barnevelders with barring added, showing all the good and indifferent points of the old breed.

To make the barred R.I.R. we did not need to start from scratch, as in the Barnevelder we now had excellent autosexing brown-downed heavy chickens. Hybrids between Rhode Island Reds and autosexing Barnevelders were mated back to R.I. Red, and so on and so on, until we finally came to the point where we could be sure that we had really reached our goal, a strain of R.I.R.

with the advantage of autosexing.

Whereas the autosexing Leghorn hens (Legbars) are quite different in colour from ordinary Brown Leghorn hens, and the autosexing Barnevelder hens are unmistakably distinct from normal non-barred Barnevelders, the autosexing R.I. Reds, when they have been back-crossed to good Rhodes for a sufficient number of generations, are not very different from ordinary utility R.I.R. stock. In fact, with many hens, one has to handle them to discover that their black points are faintly barred. The cocks, however, are striking-looking fowls which show a distinct pattern of dark glossy red on a white underground, every feather in hackle and saddle distinctly barred, the tail preponderantly white.

I am afraid a considerable part of the difficulty some breeders have in making autosexing breeds efficiently lies in the fact that they are too impatient, trying to stabilise the family too soon. The work is not at all difficult, only it takes from six to nine generations of back-crossing to eliminate all traces of the foreign breed from which the sex chromosome has been borrowed.

If an autosexing R.I.R. is pale in colour, or if an autosexing Leghorn lays tinted eggs, this simply shows that the breeder has not gone on with his series of back-crosses until the birds were real pure-breeding R.I. Reds or Leghorns, as the case may be, which only differ in that one single gene. In all autosexing breeds, and the R.I.R. is no exception, the same thing holds true: as long as the strain is not yet pure, there is so much variability that the down-colours of the cockerel and pullet day-old chicks tend to overlap.

It was my experience that in the Redbar some pullet chicks were very pale, when among the adult pullets some were buffish and pale. However, this difficulty disappeared in a few generations of continued use of ordinary R.I.R. It stands to reason that in this breed, as in all the other autosexing strains, it would be very

unwise ever to use in the breeding pen any pale hens or hens which were pale in down.

When we have made an autosexing strain of poultry by the method of repeated back-crossing rather than by selection from hybrid hens, we have the great advantage that the commercial value of the breed is really based upon that of the widely-bred and selected parent breed which we have only slightly modified.

In the autosexing breeds, in so far as they have been made this way, we are never restricted in our choice of breeders to fowls within the strain. When we want to produce a great number of fowls in a short time, or when we want to introduce fresh blood, all we have to do is to use the autosexing cocks with good R.I.R. (or Brown Leghorn or Barnevelder) hens of a well-selected strain. The pullets from such matings will have exactly the same hereditary make-up as the inbred autosexing hens (heterozygous for the sex chromosome); the crossbred cockerels would be useless. This makes it possible for the breeder of R.I.R. or Barnevelders to change a whole flock into the autosexing breed by the aid of only a few purebred males.

I am firmly of the opinion that the future success of the Redbar, as well as that of the other autosexing utility breeds, depends upon the quality of the available R.I.R., Leghorn, Barnevelder, etc., stock of good commercial value upon which it continually is built up—"Poultry."

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Advantages Claimed In Dubbing Cockerels

LAST year, dubbing all breeding cockerels was recommended as a part of Connecticut's Poultry Production Economy Programme. The results have been very gratifying and have amply justified acceptance of this practice.

The reasons for the many favourable reports on cockerel dubbing may be summed up as follows, states Mr. Roy E. Jones, University of Connecticut, U.S.A.

1. RAPID FEATHERING.

Cockerel dubbing should be done when the cockerels are eight weeks old. This allows an opportunity for selection for rapid feathering. Rapid feathering can be identified in day-old chicks by the rapid growth of the flight feathers in comparison with the covert feathers on the wing together with several prominent secondary feathers. Rapid feathering can be identified in chicks ten days old by the pronounced growth of tail feathers. Both of these observations indicate sex link rapid feathering. At eight weeks, sex link rapid feathering may be identified by full tail feather development, and rapid body feathering may be identified by complete feathering over the back. If a sufficient number of rapid feathering cockerels can be selected, only cockerels carrying this qualification should be dubbed.

If rapid feathering is not sufficiently well established to maintain this standard, only rapid feathering cockerels should be selected to head special breeding pens to produce males for next year's breeding.

2. RAPID GROWTH.

The ability to consume a lot of feed and make rapid growth is an important requirement in breeding poultry, particularly in meat production. Rapid growth can be identified by weighing all cockerels at eight weeks, using a standard of two pounds or more in eight weeks. The higher this standard can be set and still get the number of cockerels required, the better. Some poultrymen working on this programme have been able to maintain a cockerel weight standard as high as 2.8 pounds in eight

weeks. Select cockerels with rather short legs and full well-fleshed breast rather than the long-legged, rangy cockerel that may have made good weight but has undesirable body type.

3. IDENTIFICATION.

Cockerels selected at eight weeks need some means of identification mark that can never be overlooked. To be effective as an indication of quality, care must be taken not to dub any cockerels that do not have superior rapid feathering and rapid growth qualities at eight weeks.

4. LESS FIGHTING.

Dubbed cockerels are less troublesome than undubbed cockerels, and they do less fighting as young stock on range and after they are placed in the breeding pens. With the combs and wattles removed, there is less to get hold of and it is not as easy to draw blood. If fighting does occur, cockerels are not as severely damaged and they recover quickly.

5. BETTER LIVABILITY.

Experience indicates that dubbed cockerels live better than undubbed cockerels. This is the report received from many poultrymen who dubbed cockerels this past year. Dubbed cockerels eat readily from the average mash hopper while undubbed cockerels frequently have difficulty in eating from the mash hopper because of the size of the comb and wattles. Better eating habits apparently make the cockerels disease resistant. Dubbed cockerels never suffer from frosted combs and wattles.

6. BETTER FERTILITY.

Dubbed cockerels remain in better flesh and better health which means higher fertility over a long period of time. With dubbed cockerels there seems to be less "bossism" and less interference with matings.

HOW TO DUB COCKERELS.

Cockerels are dubbed by cutting of the comb and wattles with a small but stout pair of shears; metal-cutting shears are excellent. The work can be most easily done by two people—one holding the cockerel by the legs and wings and the other holding the cockerel's head and doing the cutting. Hold the head in a firm erect position and cut the wattles close to the neck as they hang out without touching. If the wattles are pulled out when cut a considerable part of the neck will be left bare. Cut the comb by starting at the rear of the head and cutting toward the front of the comb at the point where the comb widens out above the head.

Cockerel dubbing is a bloody job, but if done on a warm day there will be little or no bleeding. It is surprising how quickly combs and wattles will heal and how quickly all evidence of blood will disappear. The best time and place to dub cockerels is out on range. While dubbing at eight weeks is strongly advised because of the opportunity to check rapid feathering and rate of growth, it is better to dub cockerels at 12 or even 16 weeks than to allow them to go a year in the breeding pen without dubbing.

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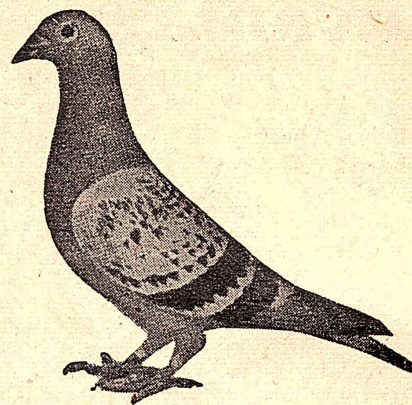
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RACING PIGEONS OUR FANCY

The "N.Z. POULTRY WORLD" is the official organ of the N.Z. Homing Pigeon Federation.



Canterbury Pigeon Flying Club.

OLD BIRD RACING NOW FINISHED.

Races from Dannevirke (294 miles, East Section) and Woodville (283 miles, West Section), were held on November 16, 218 birds from 29 lofts competing. Results were:—

West Section: 1st K. Hartland, 1243; 2nd E. French, 1241; 3rd A. Rowe, 1239.

East Section: 1st L. Cooper, 1117; 2nd A. Duffield, 1054; 3rd M. Robinson, 1053.

A special nominated bird race was held from Woodville (283 miles), December 21, 50 birds from 15 lofts competing. Results were:

1st T. Martin, 1171; 2nd R. Bell, 1160; 3rd M. Robinson, 1159.

The last event of the season was held on January 25 from Great Barrier Island, situated approximately 10 miles north of Coromandel Peninsula, North Auckland, 18 birds from 11 lofts competing. The race was a disaster, however, as only one bird homed in race time (3 days). This bird was the property of Mr. M. Robinson, who was awarded the Woodcock Cup and over £10 in cash prizemoney. The race was over a distance of 525 airline miles from Christchurch, and provided a severe test for even the best of long-distance racing pigeons, as the route over which the birds had to travel was practically a new one. The only line of flight possibly known to

them, on their journey down the Auckland Province, would be from Tauranga, a race point some 120 miles in a south-east direction, on the Bay of Plenty, and even this out-of-the-way route was probably never seen by the birds on their journey south. The birds were liberated at 10 a.m. on Saturday, and the only bird home was clocked in at 4 p.m. the following afternoon.

Homing Club Holds 43-Bird Race from Otaki

(28/9/46.)

The Hastings Homing Club held a flock race from Otaki. The 43 birds, the property of eight members, were liberated by the station-master in overcast weather and a northerly breeze. The race resulted in a win for Joe Townsend, whose bird won in the fast time of 2 hrs. 27 mins 3 secs. Results:—

J. A. Townsend's rcph 46, 1418.06 yds. per min., 1; N. Martin's rc 34, 1414.5, 2; Garf Naylor's bcc 654, 1413.6, 3; Graf Naylor's rc 384, 1412.1, 4; N. Martin's rc 153, 1410.8, 5; J. A. Townsend's rc 45, 1408.2, 6; J. Thompson's bch 299, 1406.1, 7.

Other lofts: G. H. McKain, C. J. Martin, I. Stirling and I. Sargent.

:: :: ::

The best treatment for budgerigars infested with red mite is to dust the birds with insect powder and remove to a temporary cage. Add to a gallon of warm water a tablespoonful of soap-powder, and when dissolved stir in a tablespoonful of nicotine sulphate (40 per cent.). Thoroughly wash the

cage with this, and work into every corner and crevice.

Do not return the birds until the cage is completely dry. A little insect powder may be sprinkled into the bottom of the nest.

Are They Too Fat?

If you think a hen is too fat, hold her under your left arm, head towards the back, left hand supporting her body, and two fingers between her outstretched legs. place the right hand horizontal between the end of the breastbone and the pelvic bones. The pelvic bones are two little bones just under the tail below the vent. Your hand will then be over the abdomen. The abdomen should be soft and pliable and full. If hard, resistant and protruding, with the pelvic bones covered in fat, that hen is too fat, and in a yearling should be termed a cull. She will never be profitable.

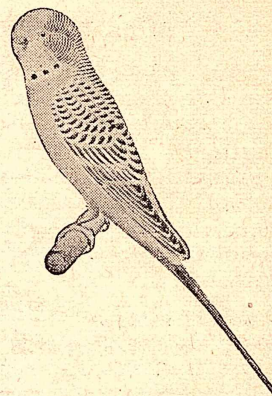
A heavy layer has not the opportunity to put on fat unless the food is entirely unsuitable. The food consumed over and above that needed for actual nourishment is the food that makes the egg. In a fat hen the food has made fat at the expense of eggs. In a pullet not yet in lay, if a fat condition does occur, should not be culled, but a watch kept on her and attention paid to the feeding. Excess of potatoes or wheatmeal in the mash sometimes causes this condition.

Alternatively, you have your too-thin hen, which, unless the thinness is caused by underfeeding, would also be a cull.—"Poultry Farmer" (Eng.).



CAGE BIRDS

*The "N.Z. Poultry World" is the
Official Organ of the N.Z. Feder-
ation of Cage Bird Clubs (Incorp.)*



TRAINING CANARIES

When handling birds for any purpose, do not put the hand into the cage and keep chasing the bird about in the hope that it may accidentally fall into it. Do not hurry, but be decisive and pounce on it sharply in such a manner as to avoid any damage to the plumage. Be sure not to grip too hard, and when secure, lay the bird in the palm of the hand with the thumb across the neck in such a way as to allow sufficient space for breathing. Held in this manner the bird cannot escape or damage itself.

With the beginning of the show season very close, most fanciers will now be training their young canaries. Training is absolutely necessary, especially with the more highly-strung, such as Yorkshires, and to send untrained birds is merely wasting the entrance fees, besides causing keen disappointment. No judge can pass an opinion on a bird that continues to flutter round the cage and will not let him see its good points.

Hang a show-cage on the cage front every day so that the bird may go out and in at will. Now and then handle the show cage containing a promising youngster and let the bird stay in the cage overnight. Some fanciers fix up a small judging table, and on this the selected birds are compared. This is a sound idea and helps to keep the eye trained.

An exhibitor should be continually judging his own birds and getting other opinions also. Some

times outside help proves very useful in detecting some fault or other previously overlooked. Many fanciers, especially novices, cannot see further than their own bird-room. Visit other breeding rooms and get fanciers' views and opinions.

Returning to training—do not handle the birds any more than is necessary. If a particular bird is wanted in a show cage, gently coax him with the aid of a stick, not necessarily touching him, and he will soon learn what he is expected to do. Some canaries take to the show cage from the start and move about with all the confidence and grace of an old bird. Others, sometimes exceptionally good birds, will not reconcile themselves to new surroundings and strange faces—these birds should be run into a show cage at every opportunity. When a friend calls, let him handle the cages and look them over. In this way the birds quickly overcome their attack of nerves. Do not leave this part of the training until just before the show, but begin as early as possible.

No Artificial Warmth Needed

Healthy budgerigars do not require any form of artificial heat to keep them alive and well, although it has often been thought they might—as they originated from rather a hot country. Actually these birds thoroughly enjoy

cold, sharp weather, and if the opportunity arises, will play about quite happily in a shower of rain.

However, they do not thrive in wet, damp or draughty quarters, neither can they endure the direct rays of the sun. It is most unkind and harmful to the birds to let them be in the full glare of the sun without opportunity to take shelter.

In the ordinary way budgerigars do not drink much water and can go a couple of days without any. Despite this, however, a constant supply of clean drinking water should always be available. During the breeding season, they invariably partake of large quantities of water and in hot weather it is often advisable to fill the water pots morning and evening.

The fact that budgerigars are naturally small drinkers makes it more difficult to give them medicine or tonics when necessary, which is fortunately very rarely. The best procedure in the case of sick birds is to bring them indoors and give them extra warmth. After the sick birds have been in a temperature of 65 to 75 degrees for two hours or so, they are usually thirsty. It is then the necessary remedy can be given effectively in the drinking water.

Budgerigars suffer from very few illnesses, the two principal ones being fits, usually brought about through excessive excitement, and egg-binding, which, of course, is only applicable to the hens.

You Must Keep Budgerigars

They provide the best antidote for everyday worries and troubles and are such delightfully fascinating birds. When we look at the great array and combination of art colours which exist in our budgerigars, can one wonder that such interest should be so keenly aroused.

Young people of both sexes have found that budgerigar keeping is a clean, profitable and highly interesting hobby and many parents show a keen interest in their children's birds. Business and professional men have told me that they find budgerigar keeping and breeding a wonderful help in distracting their minds from everyday problems. How nice it is to come home and spend time in the bird-room, sorting and selecting birds for show, breeding and so on.

Not only are our birds a constant source of pleasure, but visits to aviaries of friends add a further interest and stimulate the competitive spirit. There is a fine social side to our hobby and through the medium of birds many lasting friendships are made.

Budgerigar breeders are always pleased to see and discuss the various aspects of the birds with other breeders. These discussions are of great value, as those taking part often let themselves go and reveal points of interest to all concerned. I have invariably found that when a little crowd of bird enthusiasts (no matter what breed they keep) get talking together, everyone of the party picks up a helpful tip or two.

Now for some points concerning budgerigars in general. They are definitely not lovebirds, as they are so often called, and when this term is applied it should always be corrected.

Lovebirds, which come from Africa, are really true parrots, although small, and have the typical short tail associated with the parrot family; whereas budgerigars, which originate from Australia, are grass parakeets and have long tails with the two central shafts of the tail being about the same length as the rest of the body.

Budgerigars Not Breeding

There may be many newcomers to the fancy who are unaware that a budgerigar hen dislikes nesting in a box with a big entrance hole. This is because a big hole destroys her sense of safety and privacy, and that an invasion means a fight to death or the loss of her clutch.

The more defensible and secure you can make the box, the better she will be pleased. The entrance hole should not be more than two inches wide. A good plan is to nail a thin piece of wood three parts over the entrance hole, leaving just enough gap to invite the hen's attention, but, of course, utterly inadequate space for her to get in. It is a natural instinct in a hen to do a little hard work on her nest, so try letting her enlarge the entrance to her hole and she will gnaw away sufficient to enable her to squeeze through. This practice will also restrain her from doing other unwanted damage with her vigorous beak.

Some beginners in budgerigars have difficulty in catching their birds in aviaries. Many attempt to do this with their hands, which is, of course, difficult and calculated to exhaust both birds and owners. The correct method is to use a suitable net about 14 inches in diameter. The frame is made of wood and the net is eight inches long. A long handle is not advisable as it gets in the way when the net is being used. Although, of course, if the aviary is particularly high, a bigger handle is necessary. Budgies can frequently be caught without any risk of damage, as they are flying or while

they are clinging to the netting. Care must be taken not to hit the bird with any part of the wooden frame. A little practice makes the job quite simple.

BREEDING TERMINOLOGY

CROSSBRED: An individual produced from a mating between different breeds or varieties.

INBRED: An individual resulting from several generations of the mating of relatives so that the inbreeding will exceed the equivalent of two generations of brother-sister mating. (An individual exceeding 37½ per cent. coefficient of inbreeding.)

INBRED LINE: A group of inbreds in which the relationship is sufficiently close so that the offspring of any pair within the group will be inbred to exceed the equivalent of two brother-sister matings, i.e., exceeding 37½ per cent. coefficient of inbreeding.

HYBRID: The first generation resulting from a cross between two unrelated inbreds.

SINGLE CROSS HYBRID: The first generation resulting from a cross of two unrelated inbreds.

THREE-WAY CROSS HYBRID: The first generation produced by the mating of a single cross to an inbred not related to the parents of the single cross.

FOUR-WAY CROSS HYBRID: The first generation produced by the crossing of two single crosses; involving four unrelated inbred lines.

TOP-CROSS: An individual produced by mating an inbred to a non-inbred.

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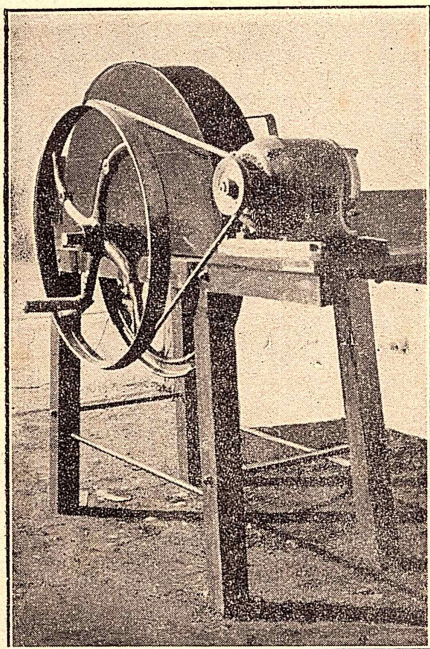
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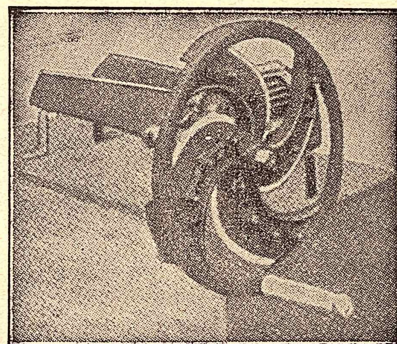
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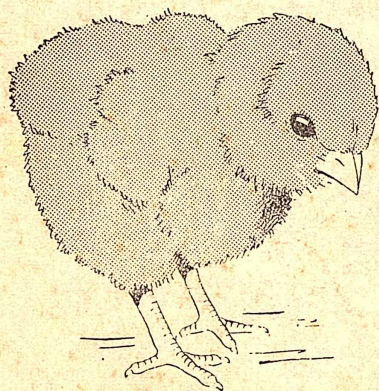
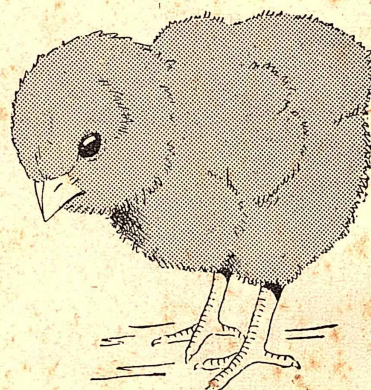
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